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STANDARDS FOR MEASURING THE EFFICIENCY OF EXHAUST SYSTEMS IN POLISHING SHOPS.

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Standards of Air Dustiness.

From the standpoint of the sanitarian and public health official, the influence of dusty trades on health is largely dependent on the character of the dust. The industrial dusts with which the present study is concerned are those which are injurious by virtue of their physical properties and their mechanical irritant action rather than because of chemical toxicity or bacterial content.

The protection of workers against such dusts can sometimes be attained by the substitution of wet for dry processes and sometimes by accomplishing sorting or abrading operations by the use of mechanical devices in inclosed spaces. In certain extreme cases, as in the sand-blasting of large castings, the wearing of special respirators or helmets is the only practicable safeguard. In most dust-generating processes, however, and notably in the operation of grinding and buffing wheels, the removal of the dust at its point of production by a powerful system of local exhaust ventilation is the most effective safeguard.

Many State laws deal with this problem, but until recently the provisions they contain have been very general in their nature. Seven years ago Hoffman (1911) reviewed the state of existing legislation as follows:

"Ten States make special mention of dusts from emery wheels or other metallic substances. Except in five States (Illinois, Michigan, New Jersey, Ohio, and Wisconsin) the laws require merely that injurious dusts are to be removed 'as far as practicable' or 'as far as the nature of the business permits', or 'when inhaled to an injurious extent'; and the entire decision as to the kind of protective device necessary is left to the discretion of the inspection officials. In the five States mentioned the laws are more specific in that they carefully

define the character of the appliances to be installed and place the duty of installation directly upon the employer. In Michigan and in Illinois under the 1905 act, which was not repealed by the law of 1909, however, the inspector may not enforce the provisions of the law unless complaint has been made by some person, and in Illinois the complaint must be accompanied by $1. Twenty-eight States and the District of Columbia have no specific legal enactment for the protection of workers from injurious dusts, although several of these have general provisions with reference to ventilation."

Since 1911 several States have adopted, usually through industrial commissions or industrial boards, more specific and definite standards for dust removal. So far as we are aware those regulations all depend on the establishment of a minimum static suction head in the exhaust ducts connected with grinding, polishing, and buffing wheels.

Thus, according to the Wisconsin Code—

"On all grinding, buffing, and polishing wheels, the suction in the connection to the hood must be sufficient to displace a column of water in a U tube, 5 inches.

"The test for suction with the U tube must be a static test and must be made in the following manner: A hole $\frac{1}{8}$ inch in diameter must be made in the suction pipe approximately 12 inches from the connection to the hood. The rubber hose attached to the U tube must be placed over the $\frac{1}{8}$-inch hole and the test made under these conditions. When the water in the U tube stands at 0, the 5-inch displacement is secured when one column of water rises $2\frac{1}{2}$ inches above 0 and the other column of water falls $2\frac{1}{2}$ inches below 0."

The New Jersey code requires that—

"Sufficient suction head shall be maintained in each branch pipe within 15 inches of the hood to displace 2 inches of water in a U-shaped tube. Pressure to be taken by pressing tube attachment over small opening through pipe, commonly called static method. Tests to be made with all branches open and unobstructed."

The New York code reads:

"Sufficient static suction shall be maintained in every branch pipe within 1 foot of the hood to produce a difference of level of at least 2 inches of water between the two sides of a U-shaped tube. Test shall be made placing one end of a rubber tube over a small hole made in pipe, the other end of tube being connected to one side of U-shaped water gauge. Such test shall be made with all branch pipes open and unobstructed."

The head, as thus measured, includes both velocity and frictional components, and it is obvious that it bears no necessary relation to the velocity of the exhaust at the face of the wheel itself. The State codes, to which reference has been made, do, it is true, specify the

size of the exhaust piping to be installed for a wheel of any given size, but the form of the hood and its arrangement in relation to the grinding process will materially affect the results obtained, while any obstruction to air flow between the wheel and the point where the suction head is measured will reduce the actual efficiency obtained with a given suction head. For example, in a certain polishing shop studied by us the exhaust was effected through a 10 by 6 inch opening in the machine table directly below the wheel. In these openings were placed screens of wire mesh, some with nine-sixteenths inch meshes and others with one-fourth inch meshes. The fine mesh screens were many of them badly clogged with lint and other forms of dirt. With the same suction head in the exhaust pipe, the velocity through the 10 by 6 inch opening without any screen was 900 feet per minute; with a fairly clean coarse screen (A, fig. 1) it was 860 feet; with a badly clogged fine screen (B, fig. 1) it was only 500 feet.

For such reasons the standard which depends only on suction head in the exhaust pipe seems to us very inadequate as a measure of the actual protection afforded to the worker, and the difference between the New York and New Jersey standards of 2 inches and the Wisconsin standard of 5 inches indicates that the evidence upon which even this imperfect standard has been based must be somewhat inconclusive.

A more valuable sort of standard from the sanitary standpoint would be one based on actual velocity of exhaust at the point of dust production, instead of suction head in the duct below. Such a standard was suggested by the British departmental committee on the lead hazard in the pottery industry (Great Britain, 1910) in the form of the very mild recommendation that a speed of 100 linear feet per minute should be maintained at the point of dust production.

The only standard that can be altogether satisfactory to the sanitarian, however, is one that deals directly with the actual condition of the air inhaled by the worker. It is well that certain definite suction heads and air velocities should be maintained, but what we really want to know is whether the dust has actually been removed. Mechanical standards are convenient and easy of application, but whenever special conditions interfere with such correlation it is the actual state of the atmosphere that is of primary importance. What we must ultimately rely upon in the future is a standard that rests upon the number or weight of dust particles actually contained in the air breathed by the worker.

So far as we are aware only two efforts have so far been made to set definite standards of this kind for industrial dusts, both of them in connection with the air of mines.

The earliest of these attempts was made by the miners' phthisis prevention committee of South Africa (1916), and reference to their

report (p. 21) shows that they were fully cognizant of the difficulty and the novelty of the problem. To quote:

"69. The committee, being desirous of taking immediate steps to cope with the disease, was confronted with the difficulty that no standard of purity with regard to dust existed to which to work. In order to assist in arriving at such a standard, tests of the amount and the character of the dust in the street air of Johannesburg were taken as affording some basis of comparison. At the same time it was soon discovered by experiment that it was practically impossible to remove by dust-allaying devices all the dust from either underground or surface air. The question arose as to what weight per cubic meter could be considered permissible, and as this was more or less a matter for conjecture the committee decided, for the time being, to adopt the tentative standard of 5 milligrams of dust to the cubic meter of air. This figure was at the time supposed to represent the average amount of silicious dust under 70 microns diameter present in the air of a Johannesburg street, but on account of the great difference in character and the proportion of 'injurious' dust between mine and street dust, the direct comparison of weights may be misleading.

"The amount of 'injurious' dust which air can carry without being dangerous has not yet been determined, and, indeed, can only be ascertained by experience."

The only other attempt to set a standard for the dust content of air was made by Higgins, Lanza, Laney, and Rice (1917) in their very complete study of the mines in the Joplin district (Missouri). They say:

"The most reasonable standard then appears to be one based on the quantity of dust that will remain in suspension after the best known methods have been put into use for its abatement.

"It has been demonstrated in the sheet ground mines of the Joplin district that by the proper use of water and the regulation of certain details of mining the quantity of dust in the mine air can be kept below 1 milligram per 100 liters of air; so it seems reasonable to use 1 milligram as a standard at least for the Joplin district."

No similar studies have, so far as we are aware, been made in connection with the dust produced in grinding or polishing industries.

Methods Adopted for Studying Suction Head in Exhaust Pipes and Dust Content of Air.

Before attempting to fix standards of air dustiness we desired to study the relation in actual practice between suction head in exhaust pipes and dust content of the air of the workroom. Our method of procedure was to vary the exhaust pressure at the grinding wheel, measure this pressure in terms of inches of water in a U tube, and then

find the corresponding dust content of the air in the near vicinity of the machine. It is quite evident that under given conditions there must exist a more or less definite exhaust pressure, above which it is impossible to obtain further marked reductions in the dust content of the atmosphere. This quantity of dust may for the want of a better name be called the residual dust content of the air. This dust count (and weight) would probably be a fair standard and would agree closely with the ideas of Lanza and Higgins when they say:

"The most reasonable standard, then, appears to be one based on the quantity of dust that will remain in suspension after the best known methods have been put into use for its abatement."

At the very outset of our work it was agreed that the count of the number of dust particles in each cubic foot of air would not by itself give a complete record of the harmfulness of the dust. It was decided that the following information was essential: Number of particles, distribution by size, weight of dust per cubic foot of air, and the proportion of the dust that was organic or inorganic in nature.

The choice of a sampling method was greatly facilitated by the final report of "The Committee on Standard Methods for the Examination of Air" (1917).

Referring to the Palmer "water spray method," the committee concludes: "This method is a new one and may no doubt be altered and improved in the future. In its present form, however, it has given entirely satisfactory results as tested in the laboratory of three members of the committee. We believe it to be the most promising method now available and recommend that it be used in ordinary sanitary investigations."

In an exhaustive report by Palmer, Coleman, and Ward (1916) we find (p. 1063) under the summary of results with the three sampling methods studies (Graham-Rogers plate, sugar filter, and water-spray methods):

The water-spray apparatus is superior to the sugar filter in—

(*a*) Making possible the collection of larger air samples in the same period of time, with the attendant greater accuracy in the count.

(*b*) Providing a dust sample whose content can be estimated by turbidity and weight as well as by counting.

(*c*) Being more portable.

(*d*) Simplifying and reducing the errors of technique in the substitution of distilled water as the filtering medium for solid soluble material, such as sugar or resorcin, whose dust content is a more variable factor.

And, lastly, Ward (1916), speaking of this same method, says (p. 171):

"It is firmly believed that the new method not only furnishes the simplest and most practical means of determining the dust content in

the air in industrial establishments but that it also gives promise of the most constant results by which the required legal standards may be obtained as a prerequisite to the enforcement of desirable conditions of wholesome air purity in factories, workshops, and mines."

In view of this experience and these recommendations the Palmer water-spray method was chosen by us as the best method to employ.

The technique in the collection and counting of the dust particles followed closely that formulated by the committee on standard methods for the examination of air. In general it was as follows:

The Palmer apparatus was placed in position, 40 cubic centimeters of distilled water was added to the bulb of the machine, and the machine was started. It has been shown by Palmer et al. (1916) (p. 1061) that in a given atmosphere the dust count varies to some degree inversely with the size of the sample, as a result of errors in small samples due to the presence of dust in the water or on the slide. For this reason our samples were practically all of either 250 or 300 cubic feet of air. After each three or four minutes of operation water was added to the bulb to make up that lost by evaporation. At the end of the sampling time the water from the Palmer bulb was drained into an Erlenmeyer flask graduated to 100 cubic centimeters. The bulb was then rinsed with small additional portions of water and these were added to the flask. The total sample was then made up to 100 cubic centimeters. Suitable controls were made with the distilled water used in sampling, which controls received the same laboratory treatment as the dust samples.

When the sample arrived at the laboratory it was thoroughly agitated and two 1-cubic centimeter portions were removed to Sedgwick-Rafter counting cells. These cells were scrupulously cleaned and in most cases were examined empty under the microscope to detect the presence of any adventitious dust. After allowing the cell contents to settle, five counts were made on each cell, one at each corner and one in the center. The lens combination used in the microscope was No. 3 objective, a No. 3 eyepiece with an inserted eyepiece micrometer and a microscope tube length of 166 millimeters. With this magnification, which was approximately 84 diameters, the smallest square ruled on the eyepiece micrometer was found to be 0.02 millimeter on a side, which is the dimension of a "standard unit." In recording the dust count, the particles were grouped by sizes and recorded in counts of the number of particles in each of the following classes.

1. Large masses about 100 standard units (0.04 square millimeter.)
2. About 25 standard units (0.01 square millimeter).
3. About 1 standard unit (0.0004 square millimeter).
4. About ¼ standard unit (0.0001 square millimeter).
5. Dust too fine to count. Presence indicated by a plus (+) sign.

Gravimetric determinations were then made on the remainder of the original sample. The method here consisted in filtering the sample through an ignited and weighed Gooch crucible. The crucible was dried in an oven at 100°–110° for one hour and again weighed. The corrected difference in weight was taken to represent the total weight of the sampled dust. The crucible was then ignited over the bunsen flame and reweighed, the loss in weight being taken as the amount of organic matter present in the original sample.

In all cases a correction was applied for the control analysis. In the microscopic examination this consisted in deducting from the results of the sample analysis the number of particles in each group as found in the control. In the gravimetric analysis the weight of total solids as found in the control was deducted from the solids as found in the sample and any loss in weight on ignition of the control was deducted from that of the sample.

To convert the corrected dust count into the number of particles per cubic foot of air we must first multiply the average count per ¼ field by 4 in order to give the average count per total field – 1.0 millimeter × 1.0 millimeter. Since our cell is 1 millimeter deep this count gives the number of particles in a cubic millimeter of our sample. This value must now be multiplied by 1,000 to give the count per cubic centimeter, and again by 100, since the total amount of dust was suspended in 100 cubic centimeters of water. (In a few cases the sample did not contain 100 cubic centimeters and in these the proper figure was used.) It now remains to divide this figure by the total number of cubic feet of air in the sample. Summarizing, we have:

Particles per cubic foot of air = Count per one-fourth field × 400,000 ÷ cubic feet of air in sample.

The U tube used for determining the exhaust pressure was an ordinary piece of glass tubing, bent in the form of a U, attached to one end of which was a piece of rubber tubing. The U tube was filled with water, so colored as to facilitate reading.

The method of determining the U-tube reading was very simple. It consisted in applying to a hole ⅛ inch in diameter, drilled in the straight portion of the branch exhaust pipe between the machine and the main lateral, the loose end of the rubber tube to which the U tube was fastened. The difference in water level on both sides of the U was then read from a scale fastened to the tube.

Velocity measurements were also made at each machine with an anemometer, so as to determine if possible any correlation between U-tube reading and velocity of air flow.

The exhaust in the principal workroom where these studies were conducted was through a rectangular opening below the wheel. The branch exhaust pipe had a bend just below this opening, and in order to secure a fairly even distribution of velocity over the area where the

measurement was made, we removed the wheel and placed over the exhaust opening a rectangular box the size of the opening and 2 feet high, with top and bottom open, and made our anemometer measurements at the top of this box.

Relation between Suction Head in Exhaust Ducts, Velocity of Flow at Point of Exhaust, and Dust Content of Workroom Air.

Our first studies were carried out in the "Cornering and Light Polishing Shop" of a large small-arms plant, which we shall call "Factory A"; and we desire to express our warm appreciation of the courteous cooperation on the part of the management which made these studies possible.

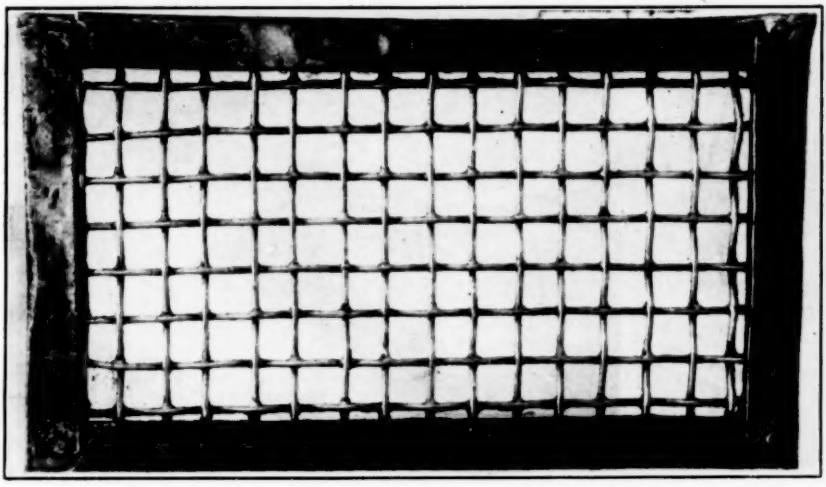
The "Cornering and Light Polishing Shop" in question is rectangular in shape, 142 feet long by 52 feet wide and 12 feet from floor to ceiling. Ventilation is secured by means of 14 Fenestra windows, 10 by 18 feet. These windows are completely unobstructed by buildings on either side. Natural light in this room is ample, artificial light being used only on dark days.

The operation carried on is that of polishing gun parts and magazine tubes. This is accomplished by holding the piece in close contact with the abrasive wheel and so moving the piece that a smooth polished surface is obtained.

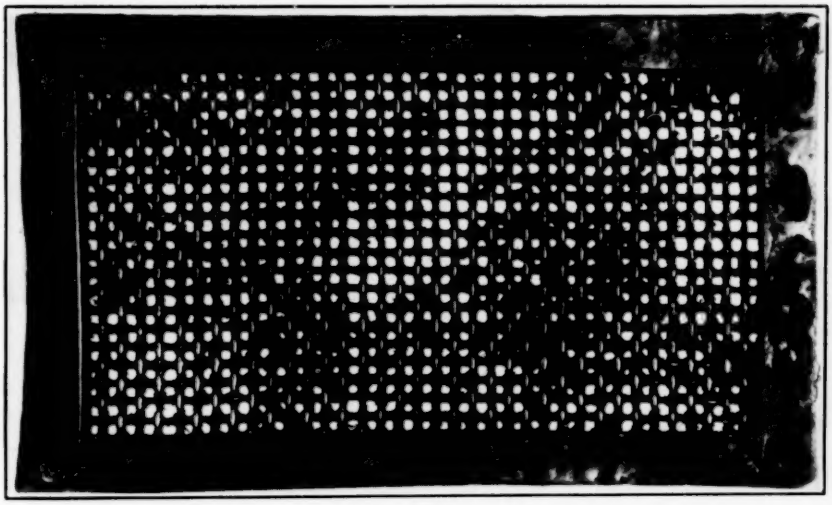
The equipment in this shop consists of five rows of polishing machines mounting approximately 29 wooden wheels, 20 small leather wheels, and 6 belts. Four types of exhaust piping are in use. For polishing magazine tubes a 2 by 6 inch overhead exhaust is used. For polishing large rifle parts a standard down-draft exhaust hood is provided having a 10 by 6 inch throat opening. For the small leather wheel equipment no hoods are used, the exhaust pipe terminating in a 3-inch opening beneath the wheel. For the emery belts a special form of adjustable hood and pipe is employed.

The emery wheels are made by gluing the emery powder (No. 90 is generally used) to the wheel by means of a thin application of glue. When an emery wheel is to be used for the first time, after being freshly coated with emery, it is necessary that all of the loose and large or coarse particles of emery be removed. This is accomplished by means of a piece of metal, or in some cases by the use of a paddle-shaped piece of wood coated with carborundum dust, held firmly against the wheel. This is called truing the wheel. During the polishing process oil must frequently be applied by holding firmly against the wheel an oil-soaked roll of cloth. In the process of polishing gun parts as here performed there are, therefore, in the main three sources of dust:

1. Truing the wheel.
2. Oiling the wheel.
3. Polishing the gun part.



A



B

Fig. 1.

According to nature and origin the dust may be grouped as follows:

Organic:	Inorganic:
Wood.	Emery.
Cloth.	Metal.
Glue.	Carborundum.
Leather or felt.	

Two rows of machines were selected as being best suited to the purposes of our experiments, one row along the center aisle at the east end of the room and the other row along the north window side of the east end. The operation performed on the window row of machines was that of polishing the magazine tubes, and on the center row that of polishing the trigger guards of the rifles. These two particular rows were selected because they presented the most continuous flow of work and also the most continuous of the grinding operations. The Palmer apparatus was placed midway between two adjoining polishing machines, a position as near a machine as could be obtained without interfering with the work of the operator. The standardization of experimental conditions was exceedingly difficult to obtain, owing to the fact that the work in this shop was of an emergency war nature, and interference with the operators was not to be considered.

Table 1 shows in detail the results of our experimental studies in this shop. (See also fig. 2.)

A second series of similar observations was made in another grinding room of factory A, designated as the heavy polishing shop. This room is rectangular in shape, 249 feet long by 39 feet wide, and 13 feet from floor to ceiling. Ventilation is secured by windows only, of which there are 100.

In this shop the larger parts of the rifles are polished, the method of polishing being exactly the same as that employed, and the abrasive wheels being duplicates of those used, on the two rows of machines studied in the cornering and light polishing shop.

Two rows of machines were selected in this room, four sampling positions being chosen on one row and three on the other. At these seven stations samples were taken coincident with high and low U-tube readings.

In Table 2 are given the results of the experimental observations and analyses in the heavy polishing shop. (See fig. 3.)

It will be noted that the observations were made in pairs. Each pair includes, first, one observation under the normal conditions of operation of the exhaust system, and, second, an observation at the same point after a brief interval (5 to 10 minutes), during which the suction head had been reduced by opening doors in the main exhaust duct between the sampling point and the exhaust fan.

In the miners phthisis prevention committee's report it is stated that "Dr. McCrae found that the dust extracted from the lungs of

deceased miners, by a process of acid oxidation, consisted of extremely minute particles. On measurement, it was ascertained that none of the particles were larger than 12 microns in diameter, and

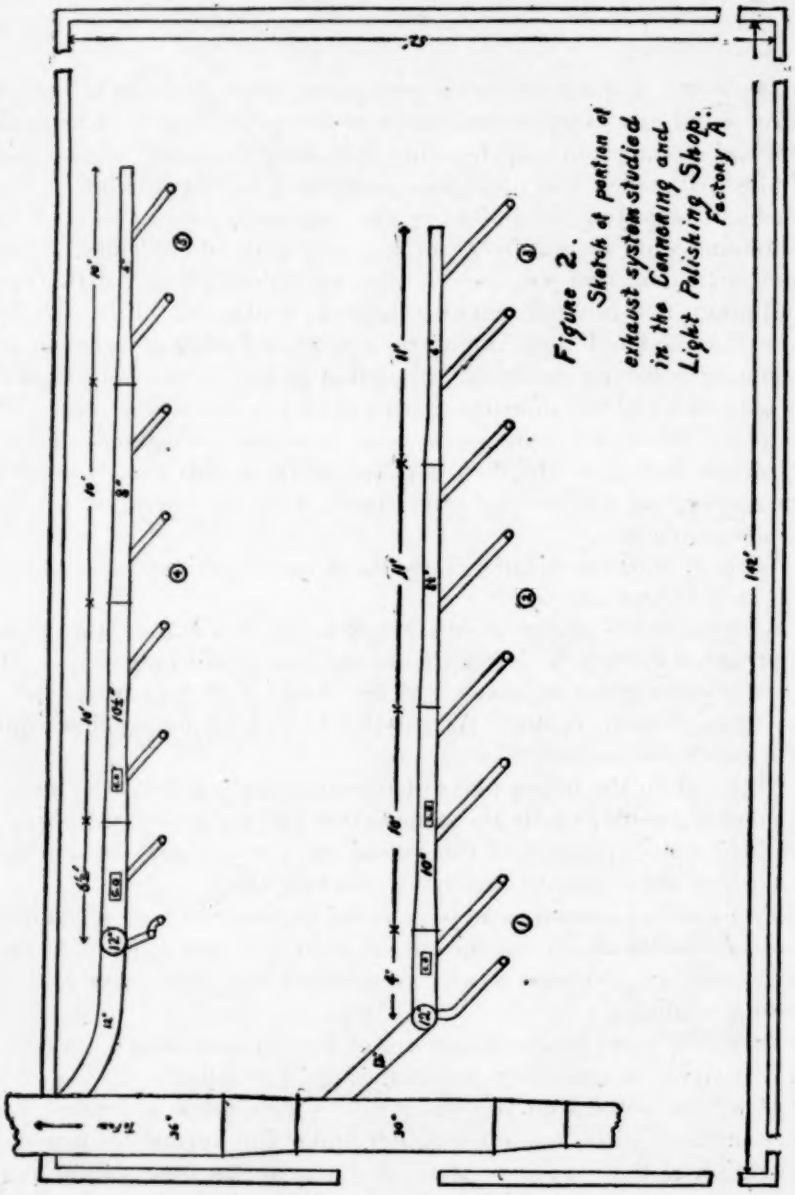
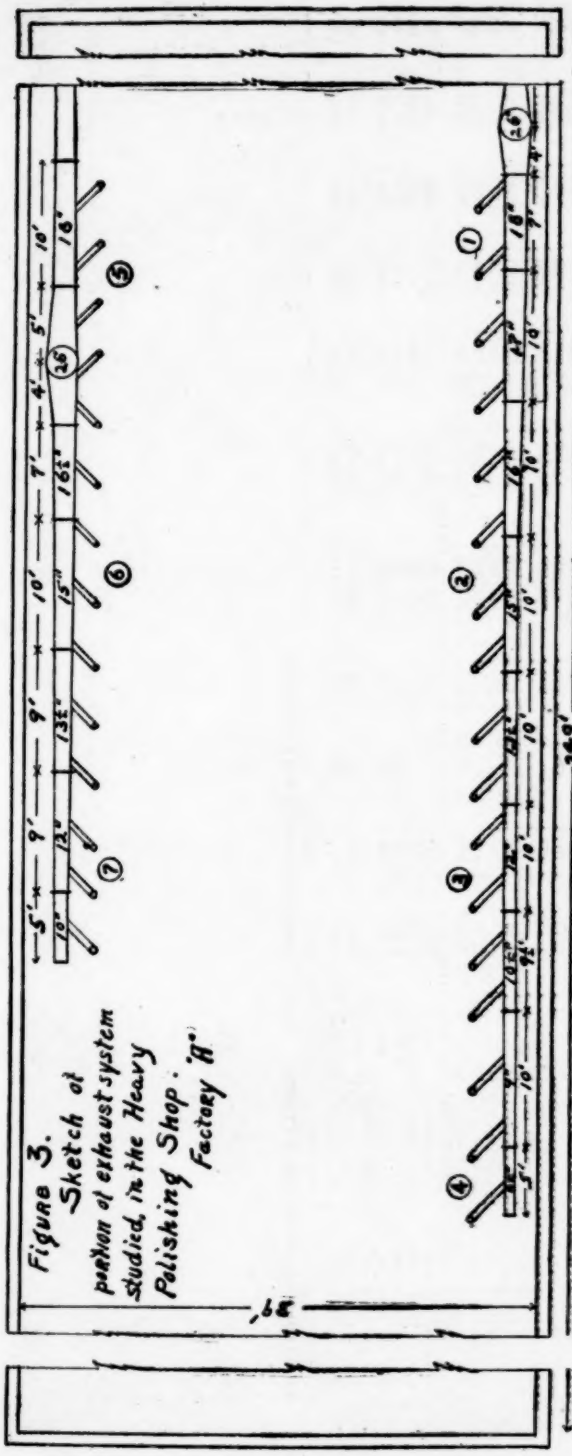


Figure 2.
Sketch of portion of exhaust system studied in the Cannoning and Light Polishing Shop. Factory A.

that the great majority of them were less than 1 or 2 microns, or very much smaller in size than a red blood corpuscle.

"These investigations were sufficient to indicate that it is the very fine particles which are the most important factor in the causation of the dis-



ease. It is, therefore, very probable that particles over 12 microns in diameter are relatively unimportant, and that only those lying under the limit of 12 microns need be taken into account."

In the light of these conclusions it is evident that the particles which in our study are of greatest interest as disease-producing ones are those classified as ¼ of a standard unit and less in area. One-fourth of a standard unit is equal to 0.0001 square millimeters, or 0.01 × 0.01 millimeters. These particles are, therefore, 10 microns and under in diameter down to, perhaps, 1 or 2 microns, a size which is just countable. It is with these particles that our conclusions will mainly deal.

In Table 3 have been grouped the dust counts of ¼ standard unit particles and the weight of the inorganic dust per cubic foot of air sampled, with the corresponding U-tube readings.

TABLE 1.—*Dust analyses—Cornering and light polishing shop, factory A.*

Sample No.	Date.	Sampling position.	U-tube reading (inches).	Exhaust velocity (ft/min.).	Average number of particles per cubic foot of air.			Total number particles per cubic foot.	Standard units per cubic foot of air.	Milligrams of solids per cubic foot of air.			Per cent inorganic material.
					25 standard units.	1 standard unit.	¼ standard unit.			Total.	Organic.	Inorganic.	
6210	June 21, 1918												
6211		2	3.75	1,470	133	8,940	215,000	224,000	66,400	0.0295	0.0119	0.0176	59.6
6212			.50	432	800	9,310	535,000	545,000	163,000	.0292	.0102	.0190	65.0
6240	June 24, 1918												
6241		3	3.50	1,697	133	3,460	22,400	26,000	10,500	.0105	.0054	.0051	48.5
6242			.25	460	133	12,800	1,773,000	1,790,000	460,000	.0805	.0145	.0460	76.0
6243		1	2.75	1,705	133	2,130	45,200	47,500	15,000	.0098	.0034	.0064	65.3
6244			1.25	1,173		5,320	894,000	899,500	227,000	.0275	.0058	.0217	78.8
6250	June 25, 1918												
6251		5	4.63	4,905		2,420	22,200	24,600	8,000	.0085	.0033	.0052	61.2
6252			.25	1,300		3,270	48,300	51,500	15,400	.0156	.0030	.0126	80.7
6253		4	3.56	4,480		3,840	241,000	245,000	195,000	.0104	.0052	.0052	50.0
6254			.50	1,340	145	4,830	745,000	750,000	195,000	.0193	.0045	.0148	75.6
6260	June 26, 1918												
6261		1	2.62	1,705		3,560	720,000	723,500	183,000	.0193	.0052	.0141	73.1
6262			1.25	1,174		6,250	1,000,000	1,006,000	256,000	.0422	.0134	.0288	68.2
6263		3	3.25	1,682	440	3,270	44,500	48,000	25,400	.0148	.0078	.0070	47.3
6264			.25	461	145	5,550	654,000	660,000	176,000	.0293	.0122	.0171	58.4
6270	June 27, 1918												
6271		2	3.00	1,626	145	5,960	252,000	258,000	72,700	.0422	.0052	.0370	87.7
6272			.25	418	3,700	25,400	790,000	820,000	318,000	.3620	.0000	.3620	100.0

Rate of sampling, 4.5 cubic feet per minute. Volume of sample, between 275 and 301 cubic feet.

TABLE 2.—*Dust analyses—Heavy polishing shop.*

Sample No.	Date.	Sampling position.	U-tube reading (inches).	Average number of particles per cubic foot of air.			Total number of particles per cubic foot.	Standard units per cubic foot of air.	Milligrams of solids per cubic foot of air.			Per cent inorganic material.
				25 standard units.	1 standard unit.	¼ standard unit.			Total.	Organic.	Inorganic.	
7160	July 16, 1918											
7161		1	3.50	160	11,050	854,000	865,210	227,000	0.0672	0.0065	0.0607	90.4
7162			1.50		16,000	1,418,000	1,434,000	363,000	.0382	.0061	.0321	86.4
7163		2	3.00		2,320	70,500	72,820	19,400	.0153	.0030	.0123	80.4
7164			.62		2,080	42,900	44,980	12,150	.0106	.0012	.0094	88.6
7165		3	2.88		1,920	56,800	58,720	15,500	.0130	.0012	.0118	90.7
7166			.62		56,000	2,980,000	3,036,000	768,000	.2120	.0004	.2116	99.7
7170	July 17, 1918											
7171		4	2.62	160	1,760	87,000	88,920	26,900	.0553	.0045	.0508	91.8
7177			.50		3,040	191,000	194,040	50,400	.0102	.0035	.0077	75.5
7180	July 18, 1918											
7181		6	3.25		1,600	130,700	132,300	33,000	.0099	.0017	.0082	82.8
7182			.50		5,600	165,000	170,600	45,400	.0270	.0042	.0228	84.5
7191	July 19, 1918	5	3.50		31,000	180,500	211,500	74,800	.0240	.0062	.0178	74.3
7192			0.00		16,960	1,075,000	1,091,960	285,000	.0748	.0060	.0688	92.0
7193		7	2.38	480	26,750	52,200	79,430	54,400	.0254			
7194			.13	800	13,450	638,000	652,250	191,500	.0802	.0102	.0700	87.2

Rate of sampling, 4.5 cubic feet per minute. Volume of all samples, 250 cubic feet.

TABLE 3.—*Comparative tabulation of number of small dust particles and weight of dust in air with high and low suction heads.*

Sample No.	U-tube reading (inches).	Number of ½ standard unit particles per cubic foot of air.	Milligrams of solids per cubic foot.	Sample No.	U-tube reading (inches).	Number of ½ standard unit particles per cubic foot of air.	Milligrams of solids per cubic foot.
6211	3.75	215,000	0.0295	6212	0.50	535,000	0.0292
6241	3.50	22,400	.0105	6242	.25	1,773,000	.0605
6243	2.75	45,200	.0098	6244	1.25	894,000	.0275
6251[1]	4.63	22,200	.0085	6252[1]	.25	48,300	.0156
6253	3.56	241,000	.0104	6254	.50	745,000	.0193
6261	2.62	720,000	.0193	6262	1.25	1,000,000	.0422
6263	3.25	44,200	.0148	6264	.25	654,000	.0293
6271	3.00	252,000	.0422	6272	.25	790,000	.3620
7161	3.50	854,000	.0672	7162	1.50	1,418,000	.0382
7163[2]	3.00	70,000	.0153	7164[2]	.63	42,900	.0106
7165	2.88	56,800	.0130	7166	.63	2,980,000	.2120
7171	2.63	87,000	.0553	7172	.50	191,000	.0102
7181	3.25	130,700	.0099	7182	.50	165,000	.0270
7191	3.50	180,500	.0240	7192	.....	1,075,000	.0748
7193	2.38	52,200	.0254	7194	.13	638,000	.0802

[1] Operator worked only 10 minutes. [2] Very light operation.

Figure 4 is a graphical representation of the various dust counts and U-tube readings taken from Table 3.

An examination of Table 3 and figure 4 shows that in general, and, other conditions being equal, a reduction in suction head is quickly followed by an increase in air dustiness.

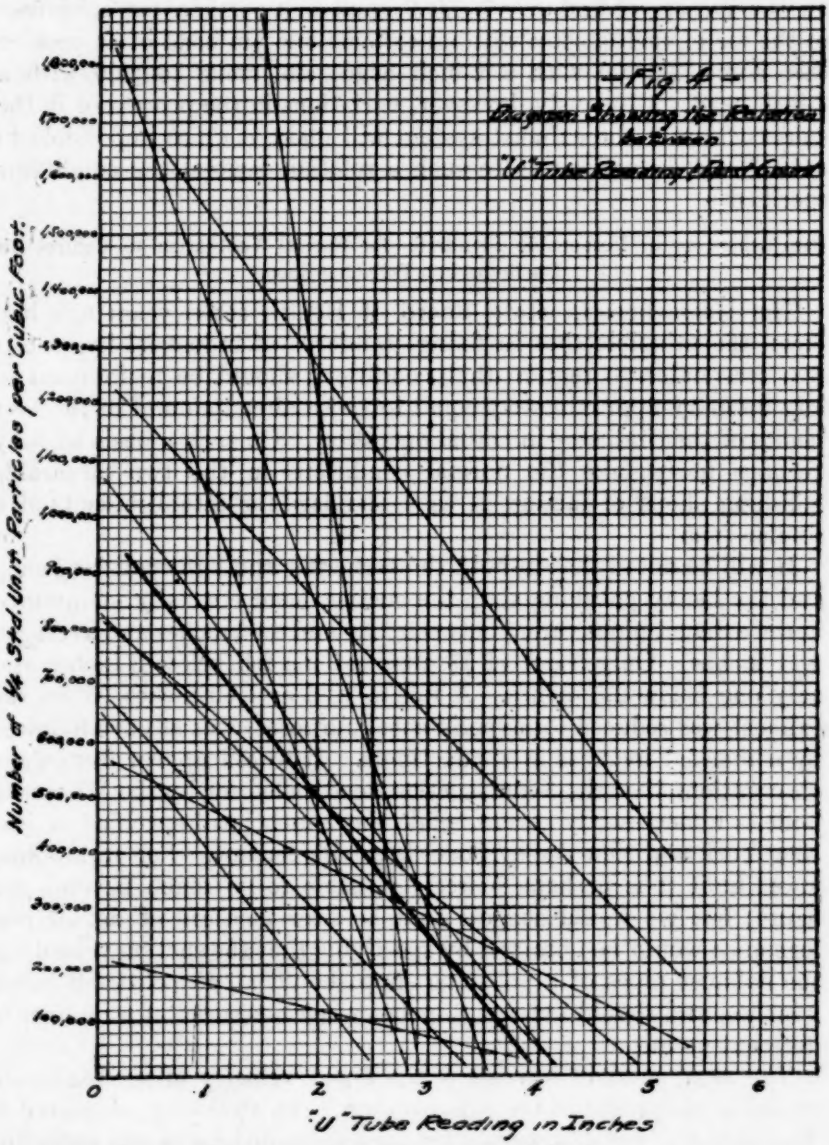
The dust counts with low exhaust pressure are relatively high, varying, with two exceptions, from 165,000 to 2,980,000 particles per cubic foot of air. These two exceptions, samples 6252 and 7164, may be justly eliminated. The dust count on these, being less than 50,000 particles at low exhaust pressure, indicates that, relatively speaking, little dust was being created in the operation. It will be noted that while sampling 6252 the operator only worked 10 minutes of the sampling time, and in the case of sample 7164 the operation was very light. The average of all the dust counts is 853,000 particles, and with the two samples 6252 and 7164 omitted, the average becomes 990,000 or practically 1,000,000 particles per cubic foot of air.

With the application of the normal, higher exhaust pressure the dust content is considerably lower, an average of all the samples being 200,000 particles. In this case there are again two samples, 6261 and 7161, which greatly increase the value of the average. Disregarding these two values the general average becomes 120,000 particles per cubic foot.

The total weight of total solids per cubic foot of air is 0.069 milligrams with the low exhaust pressure (averaging 0.56 inch) and 0.023 milligrams with the high exhaust pressure (averaging 3.21 inches).

An examination of the corresponding observations in the two halves of Table 3 (the normal conditions being on the left, the reduced exhaust velocities on the right) shows more clearly than the general averages just what was happening. In one case (samples 7163

and 7164), where only a very light operation was going on, the reduction of the suction head from 3 to 0.63 inches had no effect on the dust content. In every other instance the dust count went up when the suction was reduced, sometimes only a little—from 720,000 to 1,000,000 (6261–2), or from 854,000 to 1,418,000 (7161–2) or



from 130,700 to 165,000 (7181–2), but usually very markedly. In five instances the count of dust particles increased more than tenfold—from 22,400 to 1,773,000 (6241–2), from 45,200 to 894,000 (6243–4), from 44,500 to 654,000 (6263–4), from 56,800 to 2,980,000 (7165–6), and from 52,200 to 638,000 (7193–4).

It is evident that with the type of wheels used in the two rooms studied, and with the processes carried on there, and with the design of hoods and exhaust ducts in use, a general relation between suction velocity and air dustiness can be deduced which is represented by the heavy line in figure 4. According to this curve we may expect on the average to find over 700,000 small dust particles per cubic foot in the air of such a shop with an exhaust suction head of an inch or less, some 500,000 with a 2-inch head, and some 300,000 with a 3-inch head. Obviously, however, variations in the process or in the construction of the exhaust system will make it quite impossible to extend our deductions as to such a relation beyond the conditions specified.

Conclusions as to Reasonable Standards for Special Ventilation to Control Air Dustiness in a Polishing Shop.

The Massachusetts State Board of Health some years ago laid down the principle that in fixing standards of industrial hygiene it was reasonable to require that conditions should be maintained in any industry approximately equal to those already found in the best plants of that industry in actual operation. On such a basis we may perhaps fairly take the normal conditions in the two admirable polishing shops of factory A as a standard for establishments of a similar type.

It will be noted that in both the cornering and light polishing shop and the heavy polishing shop the suction head normally maintained in the exhaust pipes varied between 2.38 and 4.63 inches and averaged 3.21 inches. Only 5 out of 15 observations fell below 3 inches and only one below 2.5 inches. A fall to 1.25 or 1.50 inches (when the exhaust was reduced for experimental purposes) was at once followed by a marked increase in air dustiness. It would appear from these observations that the 5-inch suction head called for by the Wisconsin Code is unnecessarily severe, while the 2-inch head specified in the New York and New Jersey Codes is a trifle lenient. For an absolute lower limit it is perhaps scarcely possible to go much beyond this figure; but we would suggest that a fairer measure of actual performance would be obtained by specifying that the suction velocity in the exhaust pipes of a polishing shop should at no point fall below 2 inches, and should average 3 inches when measured at a number of different points.

The next point of interest is the linear velocity of suction maintained at the throat of the exhaust duct. This velocity, measured as described on page 433, varied for normal conditions in the cornering and light polishing shop from 1,470 to 4,905 feet per minute and averaged 2,409 feet per minute, while with the lowered exhausts the velocity varied from 418 to 1,340 feet per minute and averaged 845 feet. It would appear, then, that good conditions were main-

tained in this shop when the exhaust velocity at the opening of the exhaust pipe averaged about 2,500 feet per minute, with a minimum of 1,500 feet.

It can not be too strongly emphasized that the relation between suction head in the exhaust pipe and velocity at the wheel—and still more the relation between suction head and air dustiness—will vary widely with other conditions which obtain between the point where the suction head is measured and the wheel itself. We have cited a case in which a clogged screen reduced the linear velocity by nearly one-half; and the whole design of the exhaust system, and particularly of the hood over the wheel, will materially affect the results.

There are five main types of exhaust hoods in the shops which we have studied, as follows:

(1) The underneath type of exhaust hood, which has a 10 by 6 inch opening in the machine table directly under the polishing wheel, which tapers into a 5-inch round pipe connecting with the duct. This hood seems highly efficient, as on account of location and construction it catches practically all of the dust that it is possible to remove.

(2) The overhead type of exhaust, which is a square cast-iron pipe, 2 by 6 inches, with the 6-inch side parallel to the face of the wheel and adjustable. This type of hood would be more efficient if the opening were flared to about 4 by 7 inches, as with the narrow 2-inch opening a quantity of dust escapes into the air, especially if the operator is careless as to the position in which he holds work on the wheel. When this overhead type of exhaust hood is used, there is also a malleable-iron water pan under the wheel to catch dust that is carried past the exhaust hood. In the cornering and light polishing shop the pans are kept filled with water and catch a large amount of dust, but in the heavy polishing shop they are not used, and the majority of the men did not know what they were for.

(3) *The bayonet-shop hoods.*—This hood is used behind wheels on which bayonet blades are polished and sharpened and is a curved hood with flared sides, made of galvanized steel, adjustable to a close position to the wheel or to a distance of 18 inches from the wheel, as the operation may require. The exhaust enters through three narrow vertical openings, running from top to bottom of the hood, the top opening being 2 inches wide at its upper end, the three slits tapering to a width of one-half inch at the bottom of the lower opening. These hoods are probably as good as possible for this type of operation. Their chief drawback is that they offer an increased resistance on account of curved design, with a corresponding drop in the velocity, the velocity at the openings, with a U-tube reading of 3 inches being only 1,200 feet per minute.

(4) *The hoods used on the belt type of polishing machine.*—These are the ordinary type of galvanized steel hood, one over each pulley at each end of the belt, the hoods being tapered to a 5-inch round pipe. These hoods seem satisfactory.

(5) *The common type of galvanized steel hood, as installed by plant workmen without expert supervision.*—It is this type of hood which causes much trouble. In many cases the hoods are practically worthless, due to the fact that the branch pipe connection to the hood is not placed in the proper position to catch dust as it is thrown from the wheel.

It is clear that the efficiency of any of the above hoods depends, not only on the velocity of the exhaust, but also, in large measure, on the proper location of the pipe connection to the hood. The dust from the polishing or grinding operation is thrown from the wheel at a tangent from the point of contact of the piece of work on the

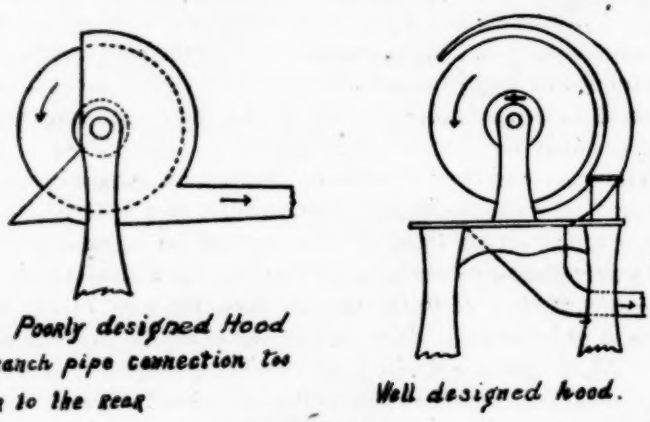


FIGURE 5.

wheel. If the exhaust hood or pipe connection to the hood is not located so that this stream of dust will enter directly into the mouth of the branch pipe, or in the case of the overhead hood, directly into the mouth of the hood, the speed with which this dust is thrown from the wheel will carry it past the exhaust hood or pipe, even though the velocity of exhaust is very high.

Other defects of exhaust systems which we have noticed are (1) the incorrect tapering of main ducts; (2) the use of too many elbows and of elbows of too square an angle; (3) the entering of branch pipes into the main duct at too square an angle.

Such conditions as those cited make it clear that the suction head maintained in the exhaust pipe, and even the linear velocity at its opening, below or above the wheel, can give only an imperfect idea of the actual condition of the shop air as regards dustiness. From the data presented in Tables 1 and 2 it seems possible to

establish tentative standards in regard to the really important condition, the actual dustiness of the air.

First of all, it may be noted that the particles present in the air of the two polishing shops studied were chiefly small particles of the ¼ standard unit size (2–10 microns). The average size of all dust particles in 30 samples of air was 0.28 standard unit or 0.00011 square millimeter. In other words, the average particle was close to 5.6 microns in diameter. The average weight of all dust particles in the same 30 samples was a little less than 0.000000086 milligram. The proportion of inorganic matter in the dust of the cornering and light polishing shop averaged 63 per cent; in the dust of the heavy polishing shop, 80 per cent.

The particles as they appeared under the microscope included both steel and emery, the former being in the majority. Particles of both types were almost all sharp and angular and the steel particles were generally of an elongated and jagged form. There were also obvious particles of lint present in the samples.

Turning now (from the standpoint of possible analytical standards) to the figures for the 15 samples taken with normal exhaust conditions, we find the average weight of dust in the air to be only 0.0237 milligram per cubic foot. Of the 15 weights, 3 were under 0.01 milligram, 6 between 0.01 and 0.02 milligram, 3 between 0.02 and 0.04 milligram, 2 between 0.04 and 0.06 milligram, and 1 over 0.06 milligram. We might fairly conclude from these data that the weight of dust in the air of a polishing shop can, with an efficient exhaust system, be kept constantly below 0.06 milligram per cubic foot and should not average over 0.03 milligram. These figures are lower than the standards of 0.14 milligram per cubic foot and 0.28 milligram per cubic foot set, respectively, by the South African commission and by Higgins and Lanza for mine air; but it is obvious that the air of a polishing shop can, and therefore should, be kept freer from dangerous dust than that of a metal mine.

It has been pointed out above that it is the small dust particles which are of chief importance, so that a standard based on the number of ¼ standard unit (2–10 microns) particles in the air should prove even more valuable than one based on weight. The average count of the 15 samples collected under normal conditions as previously noted was 200,000 of such small particles per cubic foot. Four samples were under 50,000, 4 between 50,000 and 100,000, 5 between 100,000 and 300,000, and 2 over 300,000. It appears then that the dust content of a polishing shop can be kept generally under 300,000 small ¼ standard unit dust particles per cubic foot and should not average over 200,000.

For comparison with the two well-ventilated shops which have been discussed, it may be interesting to cite results of our studies of another small grinding shop in factory A where conditions were much less satisfactory. This shop is a single basement room, approxi-

mately 90 feet long, 36 feet wide, and 9 feet from floor to ceiling. The only means of securing general ventilation is by the door (8 by 8 feet) which opens on the north side of the building. There are six small windows in the room, but these are rarely opened.

The process carried on in this shop is the removal from the forged gun parts and bayonets of the fin which is generally to be found around their perimeter. This is accomplished by holding the forging in close contact with the abrasive wheel and moving it along the surface so that the whole fin is evenly removed. The composition of the metal is in general nickel steel and that portion removed by the abrasive wheel is mainly composed of the oxides of this steel.

The equipment consists of 18 solid grinding wheels mounted in pairs. Two of the wheels have no exhaust hoods, but are equipped with cast-iron guards only. These are wheels of fine texture and used only for very light work. Four of the wheels have hoods but no connection to the exhaust system. The 12 remaining wheels have hoods with a pipe connection at the rear. The suction pressure in the main line of piping, however, varies only from 0 to 1 inch static water pressure, largely as a result of the defective design of the exhaust system. The main duct from the fan to the machines is incorrectly tapered and too many elbows are used between the fan and the dust collector. The last section of the main duct from fan to machines is in this case a 6-inch pipe, and it has four 5-inch pipes with a combined area of 78 square inches connected into it. As the area of the 6-inch duct is only 28 square inches, the velocity of the last branch is zero, and conditions will never be satisfactory until a correctly designed system is installed.

Because of the fact that many different types of parts have to be handled, and also because the size of the fin which is to be removed varies greatly, the amount of dust generated will vary between wide limits. On some classes of work the amount of heavy dust generated is very considerable, but this in many cases does not show in the results of the analyses because such dust rapidly drops to the floor of the workroom.

TABLE 4.—*Dust determinations—Rough forge grinding shop, factory A.*

Sample. No.	Sampling position.	Average number of particles per cubic foot of air, by sizes.			Total number of particles per cubic foot of air.	Standard units per cubic foot of air.	Solids per cubic foot of air (mgs./cu. ft.).
		25 standard units.	1 standard unit.	¼ standard unit.			
6101	1	.....	5,800	104,200	110,000	31,100	0.024
6102	2	.....	11,000	193,000	204,000	59,000	.048
6132	2	.....	19,000	455,000	474,000	132,000	.245
6131	1	.....	21,000	327,000	348,000	102,000	.286
6201	2	.....	30,300	529,000	560,000	181,000	.505
6202	3	.....	36,000	509,000	540,000	170,000	.341

Rate of sampling, 4.5 and 4 cubic feet per minute, respectively. Volume of air samples, 112-160 and 201.5 cubic feet.

The results of the experimental observations are shown in Table 4. It will be noted that the ¼ standard unit particles which are of greatest interest range in number from 100,000 to 500,000, the average being 352,000. With regard to the weight of the dust per cubic foot of air, the values range from 0.024 to 0.505 per cubic foot, the average being 241 milligrams per cubic foot. Only two samples were analyzed for the nature of the dust, 6201 and 6208. These showed that over 99 per cent of the dust was of inorganic nature.

The failure to comply with the standards suggested on page 445 is evidently due in this instance to obvious defects in the exhaust system, and it is clear that such a system as that at present installed should be radically reconstructed.

Observations in Regard to Air Dustiness in the Sand-blasting Room of Factory A.

It is obvious that different standards of air dustiness must be worked out for various industrial processes by a study of conditions actually maintained in well-operated shops. It may be of interest, however, to present here certain data obtained in a section of a workshop in factory A used for sand blasting.

The equipment consists of five sand-blasting cabinets, in which the operation is performed by passing the arms through open portholes in the cabinet and holding the object to be cleaned in the path of the sand blast, the operator guiding his movements by looking through a window in the face of the cabinet.

The dust in the air of this shop may arise from—

1. The agitation of the heaps of sand on the floor of the room.
2. The escape of sand through the porthole around the arm of the operator.

Table 5 shows the results of the analysis of samples of air in front of the sand-blasting cabinets. From this table it may easily be seen that the dust counts of ¼ standard unit particles are very large, varying from 400,000 to 3,000,000, the average being 1,510,000, the weights of dust per cubic foot of air varying from 0.31 to 0.93 milligrams per cubic foot, and it will be observed that the dust is 97 per cent inorganic material.

In such a workshop as this we believe that if the floor were kept free from sand piles (the sand being stored in a covered bin), if the floor adjacent to the cabinets were kept sprinkled with water, and above all if the portholes opening into the cabinets were protected by tight sleeves through which the arm of the operator were passed, the air could be kept reasonably free from dust, probably well within the limits suggested for polishing shops.

TABLE 5.—*Dust determinations—Sand blasting shop, Factory A.*

Sample No.	Date.	Sampling position.	Average number of particles per cubic foot of air, by sizes.			Total number particles per cubic foot of air.	Standard units per cubic foot of air.	Solids per cubic foot of air (mgs./cu. ft.).			Per cent of inorganic matter.
			25 standard units.	1 standard unit.	¼ standard unit.			Total.	Organic.	Inorganic.	
6140	June 14, 1918	Control									
6141		Machines 1 and 2	267	46,300	431,500	478,050	161,000	0.3175	0.0008	0.309	97.4
6142		Machines 2 and 4	267	79,500	715,000	794,767	262,000	.6070	.0015	.592	97.5
760	July 6, 1918	Control									
761		Machines 3 and 4		136,000	3,220,000	3,356,000	744,000	.9360	.0024	.9100	97.2
7100	July 10, 1918	Control									
7121		Machines 1 and 2		82,500	1,427,000	1,429,500	437,000	.6450	.0019	.6260	97.1

Rate of sampling 4.5 cubic feet per minute. Volume of samples, 250 and 300 cubic feet.

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A PRACTICAL TRAINING COURSE IN PUBLIC HEALTH ADMINISTRATION.

Preliminary announcement is made by the public health committee of the New York Academy of Medicine and the New York Bureau of Municipal Research of a practical training course in public health administration to be conducted jointly by these two agencies in New York City during the coming spring. The contemplated course will cover a period of six weeks beginning April 30, 1919. The first three weeks of the course will be devoted to lecture-conferences conducted by public health experts of national reputation, and the last three weeks to field study and observation of health work and institutions in and about New York City. No persons will be enrolled for the course who can not give assurance of attendance for at least the first three weeks of the course. The last three weeks of practical field study is, however, optional. During the first three weeks, a day or the major part of a day will be given to a lecture-conference on each topic of the program, sessions of the course being held daily except Sunday from 10 a. m. to 12 m. and from 2 to 4 p. m. A fee of $25 will be required of all students enrolling for the course.

The aim of the sponsors for this training course is to make it possible for the busy health executive to come in contact with the leaders of public health thought and action in the United States, and through such contact to acquire, for use in his own work, new ideas

and new enthusiasm. It is not intended that this course shall compete in any way with the already established courses in public health offered by special schools, but rather that it shall bridge the gulf between the educational opportunity afforded health executives by the annual meeting of the American Public Health Association, and the long courses of training offered by the special schools. The administrative side of public health work will be stressed, technical medical knowledge being taken for granted.

Among the public health leaders who have already accepted the responsibility of conducting lecture-conferences are—

Lee K. Frankel, President of the American Public Health Association.

William T. Sedgwick, Professor of Biology and Public Health, Massachusetts Institute of Technology.

Hibbert W. Hill, M. D., Executive secretary of the Minnesota Public Health Association.

Charles V. Chapin, M. D., Superintendent of Health, Providence, R. I.

George W. Goler, M. D., Health Officer, Rochester, N. Y.

Leland E. Cofer, M. D., Health Officer, Port of New York.

A. J. McLaughlin, M. D., Assistant Surgeon General, United States Public Health Service.

L. L. Lumsden, M. D., Assistant Surgeon General, United States Public Health Service.

Alice Hamilton, M. D., Bureau of Labor Statistics, United States Department of Labor.

James Alexander Miller, M. D., Director, Tuberculosis Service, Bellevue Hospital, New York City.

Ella Phillips Crandall, R. N., Executive Secretary, National Organization for Public Health Nursing.

Charles F. Bolduan, M. D., Consultant, United States Public Health Service.

Henry B. Hemenway, M. D., Chief of Division of Public Health Instruction, Illinois State Health Department.

Augustus B. Wadsworth, M. D., Director of Laboratories, New York State Health Department.

A. E. Shipley, M. D., Major, Medical Corps, United States Army.

A brief tentative outline of the course follows:

Part I.—Introductory.

1. The public health movement, with special reference to the work of the American Public Health Association.
2. The economics of health.
3. State and municipal health departments—scope, functions, and relations.
4. The United States Public Health Service—origin, history, and functions.
5. Private health agencies—scope, functions, and relation to public agencies.

Part II.—Public Health Administration—Organization, Legal and Financial Aspects.

1. The principles of business efficiency.
2. The health budget; its relation to administrative efficiency.
3. Sanitary codes and laws; legal aspects of public health administration.
4. The organization and administration of a health department—functions, divisions of work, personnel.

Part III.—Administration of Special Health Functions.

1. Vital statistics.
2. Communicable diseases.
3. Contagious disease hospitals.
4. The health laboratory.
5. Tuberculosis.
6. Venereal diseases.
7. Industrial hygiene.
8. Mental hygiene.
9. The child welfare program.
10. Medical inspection of schools.
11. Public health nursing.
12. Hospitals and dispensaries.
13. General sanitation.
14. Food and drugs.
15. Rural hygiene.
16. Public health education.
17. Maritime quarantine.

Applications for enrollment in the course may be sent to Dr. Carl E. McCombs, Bureau of Municipal Research, 261 Broadway, New York City. It is intended, if possible, to limit enrollments to 50, and to give first consideration to those actually engaged in public health administration. If the number of applicants is sufficient to warrant extending the opportunity to more than 50 public health executives and to other health workers outside the field of public administration, such arrangement will be made if it is otherwise practicable.

DEATHS DURING WEEK ENDED FEBRUARY 22, 1919, IN CITIES.

The following table shows the registered deaths from all causes, and from pneumonia (all forms) and influenza combined, in certain large cities of the United States during the week ended February 22, 1919. The annual death rates per 1,000 population for the week and for the corresponding week of previous years are also shown.

The data are taken from the "Weekly Health Index," February 25, 1919, issued by the Bureau of the Census, Department of Commerce. The populations used in computing the rates are estimated by the Bureau of the Census as of July 1, 1918.

Registered deaths and annual death rates per 1,000 population in certain large cities of the United States, week ended Feb. 22, 1919—Deaths from all causes, and from pneumonia (all forms) and influenza combined.

City.	Population July 1, 1918, estimated.	Total deaths, all causes.	Annual death rate per 1,000.	Death rate for preceding years.[1]	Influenza and pneumonia (all forms).	
					Number of deaths.	Annual death rate per 1,000.
Albany, N. Y.	112,565	48	22.2	C 18.5	10	4.6
Atlanta, Ga.	201,732	76	19.6	C 17.3	.....	.....
Baltimore, Md.	[2] 669,981	335	26.1	A 19.8	90	7.0
Birmingham, Ala.	197,670	70	18.5	A 18.4	.....	.....
Buffalo, N. Y.	473,229	154	17.0	C 15.0	34	3.7
Cambridge, Mass.	111,432	32	15.0	A 15.8	6	2.8
Chicago, Ill.	2,596,681	848	17.0	A 17.2	233	4.7
Cincinnati, Ohio	418,022	188	23.5	C 18.1	78	9.7
Cleveland, Ohio.	810,306	243	15.6	C 10.7	.....	.....
Columbus, Ohio.	225,296	90	20.8	C 20.1	20	4.6
Dayton, Ohio	130,655	39	15.6	C 14.4	11	4.4
Denver, Colo.	.....	92	.....	.....	.....	.....
Fall River, Mass.	128,392	64	26.0	C 13.0	.....	.....
Indianapolis, Ind.	289,577	117	21.1	C 13.9	.....	.....
Kansas City, Mo.	313,785	133	22.1	C 14.5	46	7.6
Los Angeles, Cal.	[2] 568,495	134	12.3	A 13.8	8	.7
Louisville, Ky.	242,707	113	24.3	C 21.3	37	8.0
Lowell, Mass.	109,081	34	16.3	A 21.5	4	1.9
Memphis, Tenn.	154,759	100	33.7	C 17.5	20	6.7
Milwaukee, Wis.	453,481	101	11.6	A 14.3	.....	.....
Minneapolis, Minn.	[2] 383,442	124	16.9	C 10.1	.....	.....
Nashville, Tenn.	119,215	70	30.6	C 17.9	23	10.1
Newark, N. J.	428,684	137	16.7	C 16.5	46	5.6
New Haven, Conn.	154,565	45	15.2	C 15.5	.....	.....
New Orleans, La.	382,273	167	22.8	A 23.7	44	6.0
New York, N. Y.	[2] 5,215,879	2,129	21.3	C 15.8	788	7.9
Oakland, Cal.	214,706	29	7.1	A 12.7	.....	.....
Philadelphia, Pa.	1,761,371	720	21.3	[3] 18.8	231	6.8
Pittsburgh, Pa.	593,203	279	24.5	C 16.8	137	12.0
Portland, Oreg.	.....	70	.....	.....	12	.....
Providence, R. I.	263,613	91	18.0	C 15.2	14	2.8
St. Louis, Mo.	779,951	231	15.4	C 14.7	.....	.....
St. Paul, Minn.	257,699	52	10.5	C 11.5	.....	.....
San Francisco, Cal.	478,530	157	17.1	C 15.6	18	2.0
Seattle, Wash.	.....	45	.....	.....	12	.....
Spokane, Wash.	.....	26	.....	.....	.....	.....
Syracuse, N. Y.	161,404	48	15.5	C 16.5	.....	.....
Toledo, Ohio.	262,234	81	16.1	A 15.1	21	4.2
Washington, D. C.	401,681	141	18.3	A 19.4	28	3.6
Worcester, Mass.	173,650	68	20.4	C 15.3	.....	.....

[1] "A" indicates that the rate given is the average annual death rate per 1,000 population for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates that the rate is the annual death rate per 1,000 population for the corresponding week of 1918.
[2] Population estimated as of July 1, 1919.
[3] Rate is based on statistics of 1915, 1916, and 1917.

EPIDEMIC INFLUENZA.

PREVALENCE IN THE UNITED STATES.

Telegraphic reports for the week ended March 1, 1919, received by the Public Health Service show little change in the prevalence of influenza throughout the country. These reports are sent by State health officers and by officers of the Public Health Service in charge of health work in civil zones around Army camps.

Decreases in the number of reported cases of influenza as compared with the preceding week were shown in Alabama, Arkansas,

California, Connecticut, Iowa, Kansas, Louisiana, Maine, New Jersey, North Carolina, and Vermont. Slight increases were noted in Illinois, Oregon, and Virginia. (See p. 460.)

Most of the zones around military camps show decreases in the number of cases reported, but some increase is noted in Camp Polk zone, N. C., and a decided increase in the zone around Camp Zachary Taylor, which includes the city of Louisville, Ky. (See p. 464.)

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

EXTRA-CANTONMENT ZONES—CASES REPORTED WEEK ENDED MAR. 1.

CHARLESTON SANITARY DISTRICT, S. C.

Charleston:	Cases.
Influenza	16
Measles	2
Tuberculosis	1
Typhoid fever	1

CAMP DEVENS ZONE, MASS.

Lancaster:	
Measles	1
Mumps	2
Scarlet fever	2
Whooping cough	5
Lunenburg:	
Measles	6

FAYETTEVILLE SANITARY DISTRICT, N. C.

Influenza	3
Measles	11
Meningitis	1
Pneumonia	2
Smallpox	3
Tuberculosis, pulmonary	2

CAMP FUNSTON ZONE, KANS.

Junction City:	
Diphtheria	1
Influenza	5
Mumps	1
Scarlet fever	4
Manhattan:	
Diphtheria carriers	3
Gonorrhea	4
Influenza	18
Mumps	4
Pneumonia	1
Scarlet fever	8

GAS AND FLAME SCHOOL ZONE, GA. AND ALA.

Chancroid:	Cases.
Columbus	1
Gonorrhea:	
Columbus	10
Girard	3
Muscogee County	3
Influenza:	
Bibb City	2
Columbus	3
Phenix City	6
Measles:	
Columbus	1
Pellagra:	
Columbus	1
Pneumonia:	
Columbus	4
Girard	1
Smallpox:	
Muscogee County	4
Syphilis:	
Columbus	5
Girard	1
Tuberculosis:	
Columbus	2

CAMP EBERTS ZONE, ARK.

Chicken pox:	
Ward	2
Influenza:	
Austin, R. F. D.	1
Cabot	6
Measles:	
England	1
Mumps:	
Lonoke, R. F. D.	3
Pneumonia:	
England	1
Ward	2

GERSTNER FIELD ZONE, LA.

	Cases.
Influenza	9
Smallpox	5
Syphilis	1
Typhoid fever	1

CAMP GORDON ZONE, GA.

Atlanta:	
Cerebrospinal meningitis	1
Chicken pox	3
Diphtheria	2
Gonorrhea	13
Influenza	53
Measles	3
Mumps	2
Pneumonia	1
Scarlet fever	5
Smallpox	53
Syphilis	18
Typhoid fever	1

GULFPORT HEALTH DISTRICT, MISS.

Chicken pox:	
Pascagoula	1
Dysentery:	
Moss Point	1
Gonorrhea:	
Pascagoula	1
Pearlington	1
Influenza:	
Biloxi	2
Escatawpa	3
Ford	1
Gulfport	8
Lizana	1
Long Beach	6
Mississippi City	1
Moss Point	2
Orange Grove	4
Pascagoula	1
Malaria:	
Biloxi	1
Gulfport	3
Moss Point	3
Vidalia	1
Waveland	1
Measles:	
Gulfport	1
Lyman	7
Mumps:	
Biloxi	1
Gulfport	1
Mississippi City	3
Moss Point	4
Pascagoula	3
Pneumonia:	
Bay St. Louis	1
Fenton	1
Gulfport	3
Logtown	1
Orange Grove	1
Pass Christian	1
Pneumonia, broncho:	
Mississippi City	2
Ocean Springs	1

GULFPORT HEALTH DISTRICT, MISS.—continued.

	Cases.
Typhoid fever:	
Biloxi	1
Gulfport	2
Handsboro	1
Pass Christian	1
Scattered	1
Whooping cough:	
Biloxi	5
Debuys	1
Moss Point	1

CAMP JACKSON ZONE, S. C.

Columbia:	
Influenza	5
Measles	2
Mumps	9
Pneumonia	1
Typhoid fever	1
Whooping cough	1
Government clinic:	
Gonorrhea	5
Syphilis	10

CAMP LEE ZONE, VA.

Petersburg:	
Gonorrhea	7
Scarlet fever	1
Syphilis	5
Prince George County:	
Influenza	2

CAMP LEWIS ZONE, WASH.

Measles:	
Steilacoom	3
Mumps:	
American Lake	11
Tuberculosis:	
Dupont	1

CAMP M'CLELLAN ZONE, ALA.

Gonorrhea:	
Anniston	13

CAMP MERRITT ZONE, N. J.

Cresskill:	
Influenza	2
Pneumonia	2
Englewood:	
Chicken pox	1
Influenza	25
Mumps	1
Pneumonia	5

MUSCLE SHOALS SANITARY DISTRICT, ALA.

Colbert County:	
Diphtheria	1
Measles	3
Smallpox	1
Lauderdale County:	
Diphtheria carriers	2
Measles	3
Mumps	1
Smallpox	4
Syphilis	

PICRIC ACID PLANT ZONE, GA.

Brunswick:	Cases.
Gonorrhea	2
Influenza	2
Measles	6
Smallpox	1
Syphilis	2

CAMP PIKE ZONE, ARK.

Chancroid:	
Little Rock	1
Chicken pox:	
Little Rock	8
Gonorrhea:	
Little Rock	10
North Little Rock	6
Scott	1
Influenza:	
Little Rock	4
North Little Rock	3
Malaria:	
Little Rock	1
North Little Rock	1
Measles:	
Little Rock	3
Mumps:	
Little Rock	10
North Little Rock	1
Pneumonia:	
Little Rock	4
North Little Rock	3
Scott	1
Scarlet fever:	
Little Rock	4
Syphilis:	
Little Rock	5
North Little Rock	1
Tuberculosis:	
Kerr	1
Little Rock	2
Scott	1

CAMP POLK ZONE, N. C.

Chicken pox:	
Durham	11
Raleigh	1
Diphtheria:	
Durham County	1
Raleigh	1
Gonorrhea:	
Durham County	1
Influenza:	
Durham	1
Raleigh	128
Wake County	73
Measles:	
Durham	1
Wake County	4
Mumps:	
Durham	6
Pneumonia:	
Durham	1
Scarlet fever:	
Durham County	1
Septic sore throat:	
Raleigh	1

CAMP POLK ZONE, N. C.—continued.

Smallpox:	Cases.
Raleigh	1
Wake County	1
Syphilis:	
Durham	2
Tuberculosis:	
Durham	2
Raleigh	1

PORTSMOUTH AND NORFOLK COUNTY HEALTH DISTRICT, VA.

Chicken pox:	
Norfolk	1
Diphtheria:	
Norfolk	1
Gonorrhea:	
Portsmouth	6
Influenza:	
Norfolk	50
Measles:	
Norfolk	3
Norfolk County	8
Scarlet fever:	
Norfolk	5
Norfolk County	1
Smallpox:	
Norfolk County	1
Portsmouth	1
Syphilis:	
Portsmouth	1
Tuberculosis:	
Norfolk County	1

CAMP SEVIER ZONE, S. C.

Tuberculosis:	
Greenville	1

CAMP SHERIDAN ZONE, ALA.

Government clinic:	
Gonorrhea	8
Syphilis	12
Montgomery:	
Scarlet fever	1
Tuberculosis	2
Typhoid fever	2

CAMP SHERMAN ZONE, OHIO.

Gonorrhea:	
Government clinic	3
Influenza:	
Chillicothe	44
Ross County	21
Scarlet fever:	
Liberty Township	1
Tuberculosis:	
Chillicothe	1

SOUTHER FIELD ZONE, GA.

Americus:	
Gonorrhea	1
Sumter County:	
Gonorrhea	1
Influenza	24
Tuberculosis	1
Whooping cough	1

CAMP ZACHARY TAYLOR ZONE, KY. AND IND.

	Cases.
Chancroid:	
Government clinic	2
Chicken pox:	
Louisville	3
Diphtheria:	
Jefferson County	1
Jeffersonville	2
Louisville	6
Gonorrhea:	
County jail clinic	9
Government clinic	42
Influenza:	
Clark County	15
Jefferson County	185
Jeffersonville	60
Louisville	505
New Albany	19
Measles:	
Jefferson County	2
Louisville	2
Mumps:	
Jefferson County	1
Pneumonia:	
Louisville	16
Scarlet fever:	
Jefferson County	2
Louisville	5
New Albany	1
Smallpox:	
Louisville	2
Syphilis:	
Government clinic	37
Tuberculosis, pulmonary:	
Louisville	1

TIDEWATER HEALTH DISTRICT, VA.

Cerebrospinal meningitis:	
Newport News	1
Chicken pox:	
Phoebus	1
Riverview	1
Diphtheria:	
Newport News	1
Gonorrhea:	
Newport News	35
Influenza:	
Newport News	1
Measles:	
Newport News	2
Phoebus	2
Riverview	1

TIDEWATER HEALTH DISTRICT, VA.—continued.

	Cases.
Mumps:	
Newport News	2
Phoebus	1
Pneumonia:	
Newport News	2
Scarlet fever:	
Hampton	1
Newport News	1
Smallpox:	
Foxhill	5
Hampton	1
Newport News	2
Syphilis:	
Newport News	4
Venereal (other than gonorrhea and syphilis):	
Newport News	3
Whooping cough:	
Newport News	2
Phoebus	1

CAMP UPTON ZONE, N. Y.

Brook Haven:	
Pneumonia	1
Tuberculosis	1

CAMP WHEELER ZONE, GA.

Macon:	
Chicken pox	2
German measles	1
Influenza	4
Scarlet fever	1
Smallpox	1

WILMINGTON SANITARY DISTRICT, N. C.

Sunset Park:	
Malaria	1
Wilmington:	
Diphtheria	1
Gonorrhea	1
Influenza	8
Meningitis	1
Scarlet fever	1
Tuberculosis	1
Typhoid fever	1
Whooping cough	1
Winter Park:	
Malaria	1

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES.

The following data are taken from telegraphic reports received in the office of the Surgeon General of the United States Army for the week ended February 21, 1919. Reports from the American Expeditionary Forces are delayed in transmission, and the "current week" for troops in the American Expeditionary Forces is not the same period as "current week" for troops in the United States.

	Current week.	Last week.
Annual admission rate per 1,000 (all causes)	1,202.50	1,142.91
All troops in United States	1,442.95	1,360.14
American Expeditionary Forces	1,118.09	1,064.66
Annual admission rate per 1,000 (disease only)	977.99	920.54
All troops in United States	1,213.62	1,132.34
American Expeditionary Forces	895.17	845.02
Noneffective rate per 1,000 on day of report	52.92	49.28
All troops in United States[1]	63.73	60.15
American Expeditionary Forces	49.13	45.41
Annual death rate per 1,000 (all causes)	15.95	14.35
All troops in United States[1]	10.47	10.02
American Expeditionary Forces	17.89	15.59
Annual death rate per 1,000 (disease only)	12.91	9.78
All troops in United States[1]	9.85	10.09
American Expeditionary Forces	13.99	9.67

[1] Sick and death rates among troops in the United States will continue to be relatively high, as the numerical strength of troops in the United States continues to decline from week to week as a result of demobilization. Well men only are eligible for discharge, while the sick and otherwise disabled are retained in service for further treatment. The continued influx of sick and wounded (properly chargeable to commands overseas) is another factor tending to increase rates in the United States and to diminish correspondingly similar rates overseas.

Cases of special diseases reported during the week ended Feb. 21, 1919.

Camp.	Pneumonia.	Dysentery.	Malaria.	Venereal diseases.		Influenza.	Measles.	Meningitis.	Scarlet fever.	Annual admission rate per 1,000 (disease only).	Noneffective rate per 1,000 on day of report.
				Total.	New infections.						
Beauregard				18						1,709.22	59.20
Bowie	11			16	12	7	31			1,743.11	105.50
Fremont				3						596.93	228.31
Greene	4		1	7	1	4	1			1,407.42	85.50
Hancock	3			24	4	6			2	850.60	58.27
Kearny				30	3					895.67	46.38
Logan	5			24		8	1			803.63	41.13
MacArthur	1		1	5		1				1,174.81	47.03
McClellan	3			28						688.43	102.60
Sevier				2		3				813.27	36.25
Shelby	3			7	3	2	1			1,724.48	70.73
Sheridan	3			7	4					1,180.63	62.87
Wadsworth	1			21	18					2,051.59	68.06
Wheeler	2		1	16		3	3			1,012.38	59.73
Custer	3			10	9		1		4	1,144.38	81.13
Devens	1			19	3	2			1	1,827.97	93.25
Dix	7			14	3	1	4		1	1,051.77	80.46
Dodge	3			12	6	5	1		9	1,548.22	113.67
Eustis	2			2		2				871.88	37.20
Funston	3			9		6			11	804.08	54.94
Gordon	1			16		18	1			1,625.35	84.68
Grant	6			5		5	14			1,213.33	75.97
Humphreys	3			8	2	2	3			733.25	27.45
Jackson	10			27		18	5	1		796.23	65.01
Henry Knox	2									1,965.40	60.21
Las Casas			8	1		1				948.41	44.29
Lee	4		1	23	13	4			3	1,133.08	81.04
Lewis	13			13	2	4	1		2	1,204.21	69.26
Meade	5			17	5	2			7	3,612.21	108.05

Cases of special diseases reported during the week ended Feb. 21, 1919—Continued.

Camp.	Pneumonia.	Dysentery.	Malaria.	Venereal diseases.		Influenza.	Measles.	Meningitis.	Scarlet fever.	Annual admission rate per 1,000 (disease only).	Noneffective rate per 1,000 on day of report.
				Total.	New infections.						
Pike	6	.....	2	26	.....	8	.....	.....	2	1,648.05	110.51
Sherman	2	.....	.....	13	.....	21	.....	.....	4	1,375.64	117.84
Taylor	28	.....	.....	14	8	82	1	2	4	1,535.12	110.85
Travis	5	1	1	31	2	3	11	.....	1	2,011.60	82.78
Upton	22	.....	.....	14	4	36	1	.....	.....	1,551.49	89.30
Northeastern Department	1	.....	.....	5	4	.....	.....	.....	1	683.94	30.56
Eastern Department	4	.....	.....	20	8	22	1	.....	.....	847.02	25.12
Southeastern Department	.....	.....	.....	10	4	11	.....	.....	.....	1,165.71	35.70
Central Department	1	.....	.....	3	.....	4	.....	.....	.....	1,127.46	31.47
Southern Department	5	.....	.....	74	12	76	2	.....	3	976.51	54.93
Western Department	1	.....	.....	12	1	1	.....	.....	.....	647.67	20.96
Aviation camps	2	.....	.....	21	.....	14	2	.....	.....	835.68	39.07
Port of embarkation:											
Hoboken	25	.....	.....	11	.....	85	1	.....	1	1,393.10	122.88
Newport News	22	.....	.....	111	7	41	3	2	14	4,051.48	129.69
Alcatraz Disciplinary Barracks	.....	.....	.....	.....	.....	.....	.....	.....	.....	684.21	16.44
Leavenworth Disciplinary Barracks	5	.....	.....	7	.....	.....	.....	.....	.....	1,355.12	43.35
Columbus Barracks	2	.....	.....	2	1	.....	.....	.....	.....	893.69	40.73
Jefferson Barracks	7	.....	.....	6	2	7	.....	.....	.....	2,202.77	87.49
Fort Logan	.....	.....	.....	1	1	.....	.....	.....	.....	851.63	34.68
Fort McDowell	1	.....	.....	.....	.....	.....	.....	.....	.....	929.95	38.74
Fort Sill	.....	.....	.....	10	10	14	.....	.....	.....	653.37	41.26
Fort Slocum	.....	.....	.....	2	.....	.....	.....	.....	.....	411.47	40.55
Fort Thomas	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,356.94	67.98
West Point	.....	.....	.....	.....	.....	.....	.....	.....	.....	519.69	14.10
Arsenals	5	.....	.....	11	3	7	2	.....	.....	810.53	35.44
Miscellaneous small stations	2	.....	.....	16	.....	14	2	.....	.....	735.51	38.72
Total	245	1	15	804	155	550	96	5	70	1,213.62	63.73

Number of deaths and annual rates per 1,000 at large camps in United States, week ended Feb. 21, 1919.

Camp.	Strength.	Deaths.		Deaths, annual rate per 1,000.	
		All causes.	Disease only.	All causes.	Disease only.
Beauregard	4,743	1	1	10.95	10.95
Bowie	5,668	.....	.....	.....	.....
Fremont	1,568	.....	.....	.....	.....
Greene	4,175	1	1	12.46	12.46
Hancock	7,825	1	1	6.64	6.64
Kearny	5,109	.....	.....	.....	.....
Logan	4,400	.....	.....	.....	.....
MacArthur	5,400	.....	.....	.....	.....
McClellan	4,532	.....	.....	.....	.....
Sevier	4,220	2	1	24.64	12.32
Shelby	4,312	.....	.....	.....	.....
Sheridan	4,008	.....	.....	.....	.....
Wadsworth	4,613	.....	.....	.....	.....
Wheeler	2,200	.....	.....	.....	.....
Custer	8,997	2	2	11.55	11.55
Devens	8,278	1	1	6.28	6.28
Dix	20,321	1	1	2.55	2.55
Dodge	12,363	3	3	12.62	12.62
Eustis	3,817	.....	.....	.....	.....
Funston	12,735	2	2	8.16	8.16
Gordon	9,246	2	2	11.24	11.24
Grant	17,598	3	3	8.96	8.96

Number of deaths and annual rates per 1,000 at large camps in United States, week ended Feb. 21, 1919—Continued.

Camp.	Strength.	Deaths.		Deaths, annual rate per 1,000.	
		All causes.	Disease only.	All causes.	Disease only.
Humphreys	9,654	2	2	10.77	10.77
Jackson	11,686	4	4	17.79	17.79
J. E. Johnston	3,122	3	3	49.96	49.96
Henry Knox	3,122	3	3	49.96	49.96
Las Casas	1,919				
Lee	16,203	3	3	9.62	9.62
Lewis	14,253				
Meade	11,794	1	1	4.41	4.41
Pike	9,655	3	3	16.25	16.25
Sherman	12,891	2	2	8.06	8.06
Taylor	17,140	12	12	36.40	36.40
Travis	10,345	2	2	10.65	10.65
Upton	14,681	6	6	21.25	21.25
Northeastern Department	5,170				
Eastern Department	30,883				
Southeastern Department	5,576	2	1	18.65	9.33
Central Department	5,719	1	1	9.09	9.09
Southern Department	40,633	4	4	5.11	5.11
Western Department	11,159				
Aviation camps	32,732	5	2	7.94	3.17
Ports of embarkation:					
Hoboken	26,391	8	8	15.76	15.76
Newport News	30,383	4	4	6.84	6.84
All others	112,934	38	36	17.50	16.58
Total	590,917	119	112	10.47	9.85

Annual admission rate per 1,000 for certain diseases.

Disease.	Troops in United States.		American Expeditionary Forces.	
	Current week.	Last week.	Current week.	Last week.
Pneumonia	21.56	17.09	39.89	31.18
Dysentery	.08	.16	1.05	.82
Malaria	1.32	1.33	.21	.11
Venereal	70.75	79.49	44.10	38.94
Paratyphoid			.40	.59
Typhoid	.17	1.16	2.87	3.94
Measles	8.44	6.75	1.30	3.07
Meningitis	.44	.66	1.70	2.71
Scarlet fever	6.16	6.83	1.79	1.08
Influenza	48.40	53.13		

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended March 1, 1919.

Alabama.—State totals: Typhoid fever 4, malaria 3, smallpox 22, measles 27, scarlet fever 11, diphtheria 5, cerebrospinal meningitis 7, influenza 212.

Arkansas.—State totals: Influenza 24, smallpox 14, measles 18, malaria 8, chicken pox 5, typhoid fever 3, scarlet fever 1.

California.—Influenza cases reported 147. Smallpox: Chico 9, Ontario 1, Sacramento city 2, Los Angeles city 2, Humboldt County 2, Oakland 2, Marysville 9, Santa Ana 1, Yuba County 5. Typhoid

fever: Los Angeles 3, Oakland 1, Sacramento County 2, Riverside County 7, Riverside city 2.

Connecticut.—No outbreak nor unusual prevalence. Influenza total for State, 224 cases.

Florida.—One case of poliomyelitis in Marion County. No unusual prevalence.

Illinois.—Diphtheria 148; of which in Chicago 118, Peoria 5. Scarlet fever 144; of which in Chicago 69, Hickory Township (Coles County) 9, Suez Township (Mercer County) 7, Quincy 6, Rogers Township (Ford County) 5. Smallpox 68; of which in Salem 22, Pekin 10, America Township (Pulaski County) 9, Springfield 5, Bloomington 4. Meningitis; Chicago 2, Normal Township (McLean County) 1. Poliomyelitis; Crete 1. Gonorrhea 109, syphilis 108, influenza 1,707 (of which in Chicago 480). Recrudescence of influenza noted in following Illinois communities: Versailles 62, Spring Forest 35, Dupage County (Winfield Township) 19, Hamilton County (Mayberry Township) 36, Jackson County (Desoto Township) 40, Jefferson County (Casner Township) 17, Havana 22, Joppa 79, Industry 61, Menard County (Petersburg precinct) 19, St. John 12, Auburn 13, Saline County (Long Branch Township) 18, Washington 14.

Indiana.—Scarlet fever: Marshall County, epidemic Greenfield. Smallpox: Elkhart, Bedford, Coxville, Huntington, epidemic at Ovid and in Addison County. Typhoid fever: Shelby County 1, Jefferson County 2. Diphtheria: Randolph County 1, Lake 1, Vigo 1, Fountain 2, epidemic Fort Wayne. Syphilis: Cases reported 32. Gonorrhea: Cases reported 51.

Iowa.—Cerebrospinal meningitis: Liscomb 1. Chancroid: Council Bluffs 2. Diphtheria: Afton 1, Atlantic 1, Des Moines 8, Dubuque 1, Mason City 1, Postville 2. Gonorrhea: Correctionville 2, Council Bluffs 6, Davenport 6, Des Moines 2, Dubuque 1, Iowa City 1, Lake City 1, Marshalltown 2. Measles: Bellevue 3. Scarlet fever: Ackley 2, Albion 1, Bellevue 1, Burlington 4, Des Moines 8, Dubuque 1, Goodell 1, Ottosen 1, Seymour 1. Smallpox: Cedar Rapids 4, Davenport 3, Des Moines 1, Mason City 5, Ottumwa 5, Vinton 2. Syphilis: Council Bluffs 2, Davenport 13, Des Moines 4, Perry 1. In rural districts of following counties. Diphtheria: Chickasaw 1. Scarlet fever: Chickasaw 3, Dickinson 6, Grundy 1, Humboldt 2, Mills 1, Monona 1. Smallpox: Harrison 1, Story 1. Influenza cases reported in State 224.

Kansas.—Meningitis: Kansas City 1, Newton 1, Wichita 1. State totals: Smallpox 59, diphtheria 23, scarlet fever 53, influenza 2,212.

Louisiana.—State totals: Influenza 180, meningitis 2, smallpox 64, typhoid fever 8, diphtheria 5.

Maine.—Diphtheria: Friendship 1, Portland 1. Gonorrhea: Augusta 1, Bath 4, Calais 1, Carmel 1, Lewiston 1, Montville 1, Portland,

6, Rumford 1. Mumps: Milo 1, Portland 1. Scarlet fever: Bath 1, Portland 4, Bangor 1. Syphilis: Auburn 1, Bangor 4, Jackman 1, Portland 1, Rumford 1. Tuberculosis: Four cases. Typhoid fever: Milo 3, Medford 1, Dover 1, Foxcroft 1. Influenza: Twenty-three cases.

Massachusetts.—No unusual prevalence.

Minnesota.—Smallpox (new foci): Dodge County, Wasioja Township 1; Kanabec County, Place Township 1; McLeod County, Hutchinson city 1; Stearns County, St. Paul city 1; Todd County, Staples city 1; Polk County, Crookston village 5; Sherburne County, Haven Township 2; Wilkin County, Breckenridge city 2. State totals: Syphilis 62 cases, gonorrhea 103 cases reported, chancroid 4 cases reported.

New Jersey.—State totals: Influenza 1,134 cases reported, pneumonia 335 cases reported. No unusual prevalence of other communicable diseases.

New York.—Outside of New York City. State totals: Typhoid fever 13, measles 209, scarlet fever 193, whooping cough 25, diphtheria 152 (Erie County 50). Smallpox: Batavia 1. Cerebrospinal meningitis: Lackawanna 2, Amsterdam 1, Wawayanda 1, Berlin 1. Cases of pneumonia reported 169. Voluntary reports: Syphilis 151, gonorrhea 34.

North Carolina.—State totals: Whooping cough 99, measles 207, diphtheria 15, scarlet fever 10, septic sore throat 2, smal pox 60, chicken pox 27, typhoid fever 9, epidemic meningitis 2, bronchopneumonia 49, lobar pneumonia 30 ophthalmia neonatorum 1, amebic dysentery 1, syphilis 9, gonorrhea 20, chancroid 1. Influenza cases reported: Alamance County 56, Cleveland County 75, Cumberland County 13, Davidson County 31, Gaston County 2, city of Charlotte 46.

Ohio.—Smallpox: Jefferson Township (Coshocton County) 16; continues epidemic Dennison, Tuscarawas County, and Montgomery County. Influenza: Material increase, mild character.

Oregon.—Influenza: Portland 61 cases (2 deaths), Benton 3, Clackamas 9, Hood River 1, Linn 2, Marion 7, Union 4, Washington 3.

Vermont.—Sixteen towns reported 94 cases of influenza. No other unusual prevalence.

Virginia.—Influenza cases reported 480; 2 cases of smallpox Alexandria County, 3 cases at Norfolk.

ANTHRAX.

City Report for Week Ended Feb. 15, 1919.

Three deaths from anthrax were reported at Fremont, Nebr., during the week ended February 15, 1919.

CEREBROSPINAL MENINGITIS.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Camp Gordon zone, Ga.	1	Tidewater health district, Va.	1

State Reports for January, 1919.

Place.	New cases reported.
Florida:	
DeSoto County	1
Gadsden County	2
Total	3
Indiana:	
Randolph County	1
Steuben County	1
St. Joseph County	1
Switzerland County	1
Total	4
Iowa:	
Butler County	1
Maine:	
Cumberland County—	
Standish (town)	1
Mississippi:	
Chickasaw County	2
Coahoma County	1
Lafayette County	1
Sunflower County	1
Total	5
New Jersey:	
Bergen County	1
Camden County	1
Essex County	7
Hudson County	1
Mercer County	1
Middlesex County	1
Passaic County	5
Union County	1
Total	18
New York (exclusive of New York City):	
Erie County—	
Buffalo	4
Lackawanna	1
Nassau County—	
Hempstead (town)	1
New York (exclusive of New York City)—Continued.	
Oneida County—	
Paris (town)	1
Onondaga County—	
Syracuse	1
Rensselaer County—	
Troy	1
Total	*9
North Carolina:	
Catawba County	1
Forsyth County	1
Harnett County	1
Jackson County	1
Mecklenburg County	2
Northampton County	1
Randolph County	1
Transylvania County	1
Total	9
Ohio:	
Athens County	1
Clinton County	1
Hamilton County	2
Pickaway County	1
Summit County	3
Total	8
Pennsylvania:	
Cambria County	2
Centre County	1
Cumberland County	1
Delaware County	1
Indiana County	1
Luzerne County	1
Northumberland County	1
Philadelphia County	3
Schuylkill County	1
Total	12
South Carolina:	
Spartanburg	1

City Reports for Week Ended Feb. 15, 1919.

Place.	Cases.	Deaths.
Alton, Ill		1
Atlanta, Ga	1	1
Austin, Tex	1	
Baltimore, Md	4	
Bellaire, Ohio	1	
Birmingham, Ala		1
Boston, Mass		1
Chicago, Ill	1	
Cincinnati, Ohio	1	1
Columbia, S. C	1	
Council Bluffs, Iowa	1	
Dallas, Tex	1	
El Paso, Tex		1
Fall River, Mass		1
Highland Park, Mich	3	3
Kansas City, Mo	1	1
Lawrence, Mass	1	1
Memphis, Tenn	1	
Milwaukee, Wis	2	2
Nashville, Tenn		1
Newark, N. J	2	1
New Orleans, La	1	
New York, N. Y	6	2
Philadelphia, Pa	1	
Pontiac, Mich	1	1
Portland, Oreg	1	
Providence, R. I		1
Roanoke, Va		1
St. Louis, Mo	1	
San Antonio, Tex	1	1
San Francisco, Cal	1	

CHANCROID.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Gas and Flame School zone, Ga. and Ala	1	Camp Zachary Taylor zone, Ky. and Ind	2
Camp Pike zone, Ark	1		

DIPHTHERIA.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Camp Funston zone, Kans	1	Camp Polk zone, N. C	2
Camp Gordon zone, Ga	2	Camp Zachary Taylor zone, Ky. and Ind	9
Muscle Shoals sanitary district, Ala	1	Tidewater health district, Va	1
Portsmouth and Norfolk County health district, Va	1	Wilmington sanitary district, N. C	1

See also Diphtheria, measles, scarlet fever, and tuberculosis, page 476.

GONORRHEA.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Camp Funston zone, Kans	4	Camp Polk zone, N. C	1
Gas and Flame School zone, Ga. and Ala	16	Portsmouth and Norfolk County health district, Va	6
Camp Gordon zone, Ga	13	Camp Sheridan zone, Ala	8
Gulfport health district, Miss	2	Camp Sherman zone, Ohio	3
Camp Jackson zone, S. C	5	Souther Field zone, Ga	2
Camp Lee zone, Va	7	Camp Zachary Taylor zone, Ky. and Ind	51
Camp McClellan zone, Ala	10	Tidewater health district, Va	35
Picric Acid Plant zone, Ga	2	Wilmington sanitary district, N. C	1
Camp Pike zone, Ark	17		

INFLUENZA.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Charleston sanitary district, S. C	16	Picric Acid Plant zone, Ga	2
Camp Eberts zone, Ark	7	Camp Pike zone, Ark	7
Fayetteville sanitary district, N. C	3	Camp Polk zone, N. C	202
Camp Funston zone, Kans	23	Portsmouth and Norfolk County health district, Va	50
Gas and Flame School zone, Ga. and Ala	11	Camp Sherman zone, Ohio	65
Gerstner Field zone, La	9	Souther Field zone, Ga	24
Camp Gordon zone, Ga	53	Camp Zachary Taylor zone, Ky. and Ind	784
Gulfport health district, Miss	29	Tidewater health district, Va	1
Camp Jackson zone, S. C	5	Camp Wheeler zone, Ga	4
Camp Lee zone, Va	2	Wilmington sanitary district, N. C	8
Camp Merritt zone, N. J	27		

MALARIA.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Gulfport health district, Miss.	9	Wilmington sanitary district, N. C.	2
Camp Pike zone, Ark.	2		

State Reports for January, 1919.

Place.	New cases reported.	Place.	New cases reported.
Florida:		Mississippi—Continued.	
Alachua County	3	Leake County	18
Bradford County	1	Lee County	44
Citrus County	4	Leflore County	107
Miami City	1	Lincoln County	33
De Soto County	1	Lowndes County	12
Duval County	2	Madison County	21
Pensacola City	12	Marshall County	7
Hillsborough County	4	Monroe County	30
Tampa	4	Montgomery County	15
Levy County	1	Neshoba County	57
Marion County	3	Newton County	4
Polk County	1	Noxubee County	11
St. Johns County	1	Oktibbeha County	10
Taylor County	1	Panola County	31
Total	39	Pearl River County	16
		Perry County	24
Mississippi:		Pike County	48
Adams County	10	Pontotoc County	30
Alcorn County	6	Prentiss County	39
Amite County	21	Quitman County	144
Attala County	12	Rankin County	15
Benton County	4	Scott County	3
Bolivar County	206	Sharkey County	36
Calhoun County	19	Simpson County	5
Carroll County	18	Smith County	6
Chickasaw County	11	Stone County	18
Choctaw County	9	Sunflower County	284
Claiborne County	34	Tallahatchie County	65
Clarke County	25	Tate County	75
Clay County	8	Tippah County	23
Coahoma County	139	Tunica County	59
Copiah County	12	Union County	6
Covington County	33	Walthall County	2
De Soto County	10	Warren County	60
Forrest County	23	Washington County	37
Franklin County	23	Wayne County	15
George County	4	Wilkinson County	4
Greene County	2	Winston County	18
Grenada County	12	Yalobusha County	7
Hancock County	25	Yazoo County	112
Harrison County	12	Total	2,842
Hinds County	160		
Holmes County	49	New Jersey:	
Humphreys County	46	Bergen County	2
Issaquena County	50	Hudson County	1
Itawamba County	9	Total	3
Jackson County	17		
Jasper County	105	South Carolina:	
Jefferson County	28	Chester County	3
Jones County	31	Chesterfield County	4
Kemper County	4	Marion County	6
Lafayette County	12	Total	13
Lamar County	26		
Lawrence County	46		

City Reports for Week Ended Feb. 15, 1919.

During the week ended February 15, 1919, there were two cases of malaria reported at Joplin, Mo., three cases at Little Rock, Ark., and two cases at Long Branch, N. J.

MEASLES.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Charleston sanitary district, S. C	2	Muscle Shoals sanitary district, Ala	6
Camp Devens zone, Mass	7	Picric Acid Plant zone, Ga	6
Camp Eberts zone, Ark	1	Camp Pike zone, Ark	3
Fayetteville sanitary district, N. C	11	Camp Polk zone, N. C	5
Gas and Flame School zone, Ga. and Ala	1	Portsmouth and Norfolk County health district, Va	11
Camp Gordon zone, Ga	3	Camp Zachary Taylor zone, Ky. and Ind	4
Gulfport health district, Miss	8	Tidewater health district, Va	5
Camp Jackson zone, S. C	2		
Camp Lewis zone, Wash	3		

See also Diphtheria, measles, scarlet fever, and tuberculosis, page 476.

PELLAGRA.

Mississippi Report for January, 1919.

Place.	New cases reported.	Place.	New cases reported.
Mississippi:		Mississippi—Continued.	
Alcorn County	6	Lee County	4
Bolivar County	23	Lincoln County	10
Chickasaw County	3	Madison County	10
Cliborne County	2	Marshall County	5
Clay County	2	Monroe County	15
Coahoma County	11	Montgomery County	3
Copiah County	4	Neshoba County	7
Covington County	1	Newton County	1
De Soto County	4	Pearl River County	7
Forrest County	11	Pike County	3
Franklin County	1	Prentiss County	5
George County	3	Quitman County	2
Hinds County	29	Sharkey County	2
Holmes County	4	Stone County	1
Humphreys County	6	Sunflower County	9
Issaquena County	1	Tallahatchie County	10
Itawamba County	3	Tunica County	8
Jackson County	1	Walthall County	1
Jasper County	1	Washington County	9
Jefferson Davis County	1	Wayne County	3
Jones County	4	Yazoo County	12
Kemper County	4		
Lamar County	1	Total	253

City Reports for Week Ended Feb. 15, 1919.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Birmingham, Ala		2	Minneapolis, Minn	1	1
Charleston, S. C		1	Raleigh, N. C		1
Memphis, Tenn		1	Winston-Salem, N. C	1	1

PNEUMONIA.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Camp Eberts zone, Ark	3	Camp Merritt zone, N. J	7
Fayetteville sanitary district, N. C	2	Camp Pike zone, Ark	-
Camp Funston zone, Kans	1	Camp Polk zone, N. C	1
Gas and Flame School zone, Ga. and Ala	5	Camp Zachary Taylor zone, Ky. and Ind	16
Camp Gordon zone, Ga	1	Tidewater health district, Va	2
Gulfport health district, Miss	8	Camp Upton zone, N. Y	1
Camp Jackson zone, S. C	1		

City Reports for Week Ended Feb. 15, 1919.

Place.	Lobar.		All forms.	
	Cases.	Deaths.	Cases.	Deaths.
Akron, Ohio	3			
Ann Arbor, Mich	1			
Anniston, Ala	1			
Asheville, N. C	1			
Atlanta, Ga	2	19		28
Atlantic City, N. J	1			
Attleboro, Mass	1	1		
Auburn, N. Y	3	1		
Baltimore, Md	41	42		
Baton Rouge, La	12	1		
Bayonne, N. J	3			
Belleville, N. J			1	
Binghamton, N. Y	1			
Boston Mass	58	25		
Bristol, Conn	2	1		
Brockton, Mass	2			
Brunswick, Ga	2	2		
Buffalo, N. Y	11	9		
Cambridge, Mass	1			
Camden, N. J	19			
Charleston, W. Va	2	2		
Chelsea, Mass	5	3		
Chicago, Ill			402	135
Cleveland, Ohio	54	33		
Coffeyville, Kans	1			
Columbia, S. C	2			
Cumberland, Md	2	3		
Danville, Ill			5	6
Dayton, Ohio	5	5		
Dedham, Mass	1	1		
Detroit, Mich	16	39	24	61
Duluth, Minn	1	3		
Easthampton, Mass	3			
East Orange, N. J			10	4
Elizabeth, N. J	5	2		
Elmira, N. Y	4	2		
Englewood, N. J	2	1		
Everett, Mass			17	4
Fall River, Mass	8	2		
Findlay, Ohio	1	1		
Fort Worth, Tex	5	5		
Frederick, Md	1			
Fresno, Cal			7	1
Gloversville, N. Y	1	1		
Grand Rapids, Mich	5	2		
Green Bay, Wis	1	1		
Greenwich, Conn	1			
Hackensack, N. J	2	4		
Hammond, Ind	1			
Haverhill, Mass	4			
Highland Park, Mich	6	1		
Holyoke, Mass	2			
Ironwood, Mich	1	1		
Ithaca, N. Y			1	2
Jersey City, N. J			12	
Joplin, Mo	1			
Kalamazoo, Mich	4	2		
Kansas City, Kans			10	
Kansas City, Mo	19	21		
Kearny, N. J	2	2		
Lackawanna, N. Y	9	2		

PNEUMONIA—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

Place.	Lobar.		All forms.	
	Cases.	Deaths.	Cases.	Deaths.
Lakewood, Ohio	3	3	.....	.....
Lawrence, Mass	2	.....	.....	.....
Lincoln, Nebr	1	1	.....	.....
Little Rock, Ark	3	2	.....	.....
Los Angeles, Cal	7	3	.....	.....
Lowell, Mass	1	2	.....	.....
Lynn, Mass	4	4	.....	.....
Marion, Ohio	1	.....	.....	.....
Marquette, Mich	1	.....	.....	.....
Meriden, Conn	1	.....	.....	.....
Montclair, N. J	1	2	.....	.....
Morristown, N. J	.....	.....	4	2
Mount Vernon, N. Y	1	.....	.....	.....
Natick, Mass	2	1	.....	.....
Newark, N. J	56	25	.....	.....
New Bedford, Mass	1	.....	.....	.....
New Britain, Conn	2	.....	.....	.....
Newburgh, N. Y	2	1	.....	.....
Newburyport, Mass	1	.....	.....	.....
Newport, Ky	3	3	.....	.....
New York, N. Y	.....	295	526	486
Norfolk, Va	1	2	.....	.....
North Tonawanda, N. Y	2	.....	.....	.....
Oakland, Cal	1	8	.....	.....
Oak Park, Ill	2	3	.....	.....
Oklahoma City, Okla	9	1	.....	.....
Ossining, N. Y	3	2	.....	.....
Passaic, N. J	3	1	.....	.....
Peoria, Ill	.....	.....	34	5
Philadelphia, Pa	193	93	.....	.....
Phillipsburg, N. J	1	1	.....	.....
Piqua, Ohio	2	1	.....	.....
Plainfield, N. J	1	1	.....	.....
Pontiac, Mich	1	3	.....	.....
Port Chester, N. Y	1	2	.....	.....
Quincy, Ill	2	3	.....	.....
Quincy, Mass	1	.....	.....	.....
Riverside, Cal	.....	.....	2	1
Rochester, N. Y	9	5	.....	.....
Saginaw, Mich	1	1	.....	.....
Salem, Mass	3	2	.....	.....
San Antonio, Tex	14	10	.....	.....
Sandusky, Ohio	1	.....	.....	.....
San Francisco, Cal	7	7	.....	.....
Santa Barbara, Cal	.....	.....	2	.....
Saratoga Springs, N. Y	1	.....	.....	.....
Sault Ste. Marie, Mich	1	.....	.....	.....
Schenectady, N. Y	2	1	.....	.....
Somerville, Mass	2	1	.....	.....
Springfield, Ill	1	.....	.....	.....
Springfield, Mass	17	4	.....	.....
Tiffin, Ohio	1	1	.....	.....
Topeka, Kans	1	1	.....	.....
Trenton, N. J	2	3	.....	.....
Troy, N. Y	2	.....	.....	.....
Utica, N. Y	1	3	.....	.....
Wichita, Kans	2	1	.....	.....
Winston-Salem, N. C	5	2	.....	.....
Worcester, Mass	9	.....	.....	.....
Yonkers, N. Y	.....	.....	2	9
Youngstown, Ohio	2	2	.....	.....

POLIOMYELITIS (INFANTILE PARALYSIS).

State Reports for January, 1919.

Place.	New cases reported.
Maine:	
Androscoggin County—	
Turner (town)	1
Mississippi:	
Lafayette County	3
Marshall County	10
Monroe County	3
Pearl River County	1
Total	17
New Jersey:	
Essex County	2
Hudson County	1
Total	3
New York (exclusive of New York City):	
Columbia County—	
Germantown (town)	1
New York (exclusive of New York City) —Continued.	
Monroe County—	
Rochester	1
Saratoga County—	
Saratoga Springs	1
Total	3
North Carolina:	
Ashe County	1
Carteret County	1
Total	2
Ohio:	
Butler County	1
Cuyahoga County	1
Summit County	1
Total	3

City Reports for Week Ended Feb. 15, 1919.

Place.	Cases.	Deaths.
Chicago, Ill	1	
Columbus, Ohio	1	
Dayton, Ohio	1	1
Ludington, Mich	2	1
Sioux Falls, S. Dak	2	

RABIES IN ANIMALS.

City Reports for Week Ended Feb. 15, 1919.

During the week ended Feb. 15, 1919, there were two cases of rabies in animals reported at Akron, Ohio, and one case at New York, N. Y.

SCARLET FEVER.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.
Camp Devens zone, Mass	2
Camp Funston zone, Kans	12
Camp Gordon zone, Ga	5
Camp Lee zone, Va	1
Camp Pike zone, Ark	4
Camp Polk zone, N.C	1
Portsmouth and Norfolk County health district, Va	6
Camp Sheridan zone, Ala	1
Camp Sherman zone, Ohio	1
Camp Zachary Taylor zone, Ky. and Ind	8
Tidewater health district, Va	2
Camp Wheeler zone, Ga	1
Wilmington sanitary district, N.C	1

See also Diphtheria, measles, scarlet fever, and tuberculosis, page 476.

SMALLPOX.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Fayetteville sanitary district, N. C.	3	Camp Polk zone, N. C.	2
Gas and Flame School zone, Ga. and Ala.	4	Portsmouth and Norfolk County health district, Va.	2
Gerstner Field zone, La.	5	Camp Zachary Taylor zone, Ky. and Ind.	2
Camp Gordon zone, Ga.	53	Tidewater health district, Va.	8
Muscle Shoals sanitary district, Ala.	5	Camp Wheeler zone, Ga.	1
Picric Acid Plant zone, Ga.	1		

State Reports for January, 1919—Vaccination Histories.

Place.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within 7 years preceding attack.	Number last vaccinated more than 7 years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
New Jersey:						
Burlington County	6			2	4	
Cape May County	1					1
Cumberland County	1					1
Total	8			2	4	2
New York (exclusive of New York City):						
Erie County—						
Buffalo	5					5
West Seneca (town)	1				1	
Oswego County—						
Oswego	6				1	5
New Haven (town)	2					2
Total	14				2	12
Ohio:						
Belmont County	1					1
Butler County	129		2	3	60	64
Clark County	1					1
Clinton County	1				1	
Coshocton County	18					18
Crawford County	2				1	1
Cuyahoga County	48				1	47
Fayette County	16				8	8
Franklin County	2				2	
Gallia County	11		1		10	
Geauga County	5				1	4
Hamilton County	12				6	6
Highland County	13				9	4
Jefferson County	4			1	1	2
Licking County	4					4
Lorain County	21				6	15
Lucas County	14					14
Mahoning County	8					8
Marion County	4				1	3
Miami County	2					2
Montgomery County	37				29	8
Muskingum County	3				2	1
Richland County	3					3
Ross County	1					1
Sandusky County	1					1
Scioto County	5				4	1
Seneca County	4				1	3
Stark County	4					4
Summit County	7				2	5
Trumbull County	1				1	
Warren County	7				7	
Williams County	1				1	
Wood County	6			1	3	2
Wyandot County	11				11	
Total	407		3	5	168	231

SMALLPOX—Continued.

State Reports for January, 1919.

Place.	Cases.	Deaths.
Indiana:		
Adams County	1	
Allen County	22	
Dearborn County	1	
Decatur County	9	
Delaware County	1	
Elkhart County	62	
Fayette County	1	
Fountain County	6	
Hamilton County	3	
Hancock County	1	
Huntington County	14	
Kosciusko County	1	
Lake County	3	
Laporte County	33	
Lawrence County	3	
Madison County	15	
Marion County	4	
Montgomery County	1	
Orange County	1	
Parke County	6	
Porter County	14	
Rush County	5	
Steuben County	3	
St. Joseph County	3	
Sullivan County	10	
Union County	5	
Vanderburg County	6	
Vigo County	6	
Wayne County	1	
White County	13	
Whitley County	1	
Total:	255	
Iowa:		
Buchanan County	4	
Cerro Gordo County	29	
Cherokee County	1	
Des Moines County	1	
Dubuque County	8	
Franklin County	2	
Harrison County	1	
Linn County	15	
Lucas County	3	
Mills County	2	
Monona County	4	
Page County	1	
Polk County	14	
Pottawattamie County	38	
Scott County	3	
Story County	2	
Wapello County	1	
Total	129	
Maine:		
Aroostook County—		
Van Buren (town)	1	
Madawaska (town)	10	
Eagle Lake (town)	8	
Penobscot County—		
Bangor	1	
Piscataquis County—		
Brownville (town)	1	
Total	21	
Mississippi:		
Adams County	1	
Alcorn County	2	
Bolivar County	33	
Carroll County	1	
Chickasaw County	1	
Choctaw County	3	
Clarke County	30	
Clay County	4	
Coahoma County	1	
Copiah County	2	
Hinds County	1	
Holmes County	4	
Jones County	2	
Lauderdale County	6	
Leflore County	14	

Place.	Cases.	Deaths.
Mississippi—Continued.		
Lowndes County	2	
Marshall County	1	
Neshoba County	10	
Newton County	4	
Pearl River County	3	
Pike County	6	
Prentiss County	5	
Rankin County	1	
Smith County	4	
Sunflower County	13	
Tallahatchie County	8	
Tippah County	1	
Union County	2	
Washington County	1	
Humphreys County	1	
Total	167	
North Carolina:		
Bertie County	4	
Cabarrus County	13	
Chatham County	2	
Chowan County	1	
Cumberland County	1	
Durham County	5	
Forsyth County	32	
Gaston County	9	
Guilford County	27	
Harnett County	2	
Hertford County	1	
Lee County	1	
Perquimans County	6	
Pitt County	3	
Randolph County	3	
Rockingham County	9	
Rutherford County	4	
Sampson County	1	
Stanly County	3	
Surry County	2	
Wake County	2	
Wilkes County	1	
Total	132	
North Dakota:		
Cass County	8	
Grand Forks County	2	
Ramsey County	1	
Total	11	
Oregon:		
Jackson County	5	
Linn County	1	
Multnomah County	5	
Portland	20	
Total	31	
Pennsylvania:		
Allegheny County	10	
Cambria County	3	
Indiana County	1	
Mercer County	1	
Total	15	
South Carolina:		
Chesterfield County	9	
Greenville County	15	
Spartanburg County	1	
Total	25	
Wyoming:		
Carbon County	1	
Albany County	8	
Sweetwater County	12	
Laramie County	15	
Natrona County	11	
Sheridan County	2	
Total	59	

SMALLPOX—Continued.

City Reports for Week Ended Feb. 15, 1919.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Adrian, Mich	1		Ludington, Mich	1	
Alliance, Ohio	5		Madison, Wis	1	
Atchison, Kans	4		Marinette, Wis	3	
Atlanta, Ga	14		Memphis, Tenn	2	
Battle Creek, Mich	1		Middletown, Ohio	3	
Bedford, Ind	1		Milwaukee, Wis	5	
Binghamton, N. Y	1		Minneapolis, Minn	7	
Brunswick, Ga	1		Mobile, Ala	1	
Burlington, Iowa	1		Muscatine, Iowa	1	
Butler, Pa	1		Muskogee, Okla	1	
Butte, Mont	2		New Orleans, La	2	
Cedar Rapids, Iowa	5		Norfolk, Va	1	
Chanute, Kans	4		North Yakima, Wash	17	
Charleston, W. Va	3		Oklahoma City, Okla	26	
Charlotte, N. C	1		Omaha, Nebr	20	
Chicago, Ill	1		Pekin, Ill	10	
Cincinnati, Ohio	3		Peoria, Ill	6	
Cleveland, Ohio	4		Pittsburgh, Pa	3	
Council Bluffs, Iowa	8		Portland, Oreg	5	
Cumberland, Md	1		Portsmouth, Va	1	
Dallas, Tex	1		Roanoke, Va	2	
Davenport, Iowa	3		Rockford, Ill	7	
Denver, Colo	13		St. Joseph, Mo	3	
Des Moines, Iowa	5		St. Louis, Mo	5	
Detroit, Mich	3		St. Paul, Minn	16	
El Paso, Tex	2		Salt Lake City, Utah	4	
Fargo, N. Dak	1		San Antonio, Tex	3	
Fort Dodge, Iowa	9		San Francisco, Cal	4	
Fort Worth, Tex	1		Seattle, Wash	9	
Galveston, Tex	1		Sioux City, Iowa	3	
Grand Forks, N. Dak	2		Sioux Falls, S. Dak	2	
Great Falls, Mont	1		Spartanburg, S. C	3	
Green Bay, Wis	2		Spokane, Wash	1	
Indianapolis, Ind	1		Springfield, Ill	1	
Ironwood, Mich	2		Steubenville, Ohio	3	
Janesville, Wis	1		Superior, Wis	4	
Kansas City, Kans	2		Tacoma, Wash	11	
Kansas City, Mo	1		Toledo, Ohio	3	
Leavenworth, Kans	1		Washington, D. C	3	
Lincoln, Nebr	20		Winston-Salem, N. C	6	
Logansport, Ind	2		Youngstown, Ohio	11	
Lorain, Ohio	1		Zanesville, Ohio	1	
Los Angeles, Cal	2				

SYPHILIS.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.		Cases.
Gas and Flame School zone, Ga. and Ala	6	Camp Pike zone, Ark	6
Gerstner Field zone, La	1	Camp Polk zone, N. C	2
Camp Gordon zone, Ga	18	Portsmouth and Norfolk County health district, Va	1
Camp Jackson zone, S. C	16	Camp Sheridan zone, Ala	12
Camp Lee zone, Va	5	Camp Zachary Taylor zone, Ky. and Ind	37
Muscle Shoals sanitary district, Ala	1	Tidewater health district, Va	4
Picric Acid Plant zone, Ga	2		

TETANUS.

City Reports for Week Ended Feb. 15, 1919.

During the week ended February 15, 1919, tetanus was reported as follows: Baltimore, Md., 1 death; Chicago, Ill., 1 case and 1 death; Los Angeles, Cal., 1 case and 1 death.

TUBERCULOSIS.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.
Charleston sanitary district, S. C	1
Fayetteville sanitary district, N. C	2
Gas and Flame School zone, Ga. and Ala	2
Camp Lewis zone, Wash	1
Camp Pike zone, Ark	4
Camp Polk zone, N. C	3
Portsmouth and Norfolk County health district, Va	1
Camp Sevier zone, S. C	1
Camp Sheridan zone, Ala	2
Camp Sherman zone, Ohio	1
Souther Field zone, Ga	1
Camp Zachary Taylor zone, Ky. and Ind	1
Camp Upton zone, N. Y	1
Wilmington sanitary district, N. C	1

See also Diphtheria, measles, scarlet fever, and tuberculosis, page 476.

TYPHOID FEVER.

Cases Reported in Extra-Cantonment Zones, Week Ended Mar. 1, 1919.

	Cases.
Charleston sanitary district, S. C	1
Gerstner Field zone, La	1
Camp Gordon zone, Ga	1
Gulfport health district, Miss	6
Camp Jackson zone, S. C	1
Camp Sheridan zone, Ala	2
Wilmington sanitary district, N. C	1

State Reports for January, 1919.

Place.	New cases reported.
Florida:	
Dade County—	
Miami	2
De Soto County	5
Duval County	2
Jacksonville	7
Escambia County—	
Pensacola	2
Hillsborough County—	
Tampa	2
Leon County	2
Monroe County	1
Polk County	1
Putnam County	1
Volusia County	4
Total	29
Indiana:	
Allen County	2
Clark County	7
Delaware County	2
Elkhart County	1
Hamilton County	1
Jackson County	1
Lake County	8
Marion County	1
Newton County	1
Shelby County	2
Tipton County	1
Wabash County	3
Total	30
Maine:	
Aroostook County—	
Ashland (town)	1
Cumberland County—	
Standish (town)	1
Piscataquis County—	
Dover (town)	1
Total	3
Mississippi:	
Adams County	4
Amite County	2
Attala County	2
Bolivar County	9
Calhoun County	2
Carroll County	3
Chickasaw County	1
Clay County	2
Coahoma County	1
Copiah County	1
De Soto County	2
Holmes County	1
Issaquena County	1
Jefferson County	1
Kemper County	1
Lafayette County	1
Lawrence County	4
Leake County	1
Lincoln County	3
Lowndes County	2
Neshoba County	6
Newton County	1
Pike County	5
Scott County	1
Smith County	4
Sunflower County	3
Tallahatchie County	2
Tate County	3
Tunica County	1
Union County	4
Walthall County	1
Warren County	3
Washington County	1
Wayne County	1
Winston County	3
Yalobusha County	2
Yazoo County	5
Total	90
New Jersey:	
Bergen County	1
Burlington County	1
Essex County	6
Hudson County	1
Mercer County	3
Monmouth County	2
Morris County	2
Somerset County	1
Sussex County	2
Union County	2
Warren County	3
Total	24

TYPHOID FEVER—Continued.

State Reports for January, 1919—Continued.

Place.	New cases reported.
New York (exclusive of New York City):	
Albany County—	
Albany	2
Watervliet	1
Broome County—	
Sanford (town)	3
Chautauqua County—	
Sherman (town)	1
Chenango County—	
Pitcher (town)	1
Clinton County—	
Beekmantown (town)	1
Delaware County—	
Walton	2
Dutchess County—	
Fishkill	1
Erie County—	
Buffalo	13
Tonawanda (town)	1
Greene County—	
Catskill	1
Herkimer County—	
Little Falls	2
Frankfort	1
Ilion	1
Herkimer (town)	1
Herkimer	4
Jefferson County—	
Theresa (town)	1
Carthage	1
Lewis County—	
Harrisville	2
Turin	1
Monroe County—	
Rochester	2
Niagara County—	
Lockport	2
Oneida County—	
New Hartford	1
Ontario County—	
Canandaigua	1
Orleans County—	
Albion	3
Holley	1
Oswego County—	
Oswego	2
Rensselaer County—	
Troy	1
St. Lawrence County—	
Norwood	1
Potsdam	1
Saratoga County—	
Mechanicsville	18
Halfmoon (town)	1
Schuyler County—	
Watkins	1
Seneca County—	
Waterloo	1
Steuben County—	
Painted Post	1
Suffolk County—	
Central Islip State Hospital	1
Sullivan County—	
Liberty (town)	1
Ulster County—	
Kingston	4
Washington County—	
Whitehall	2
Wyoming County—	
Castile	3
Total	89

Place.	New cases reported.
North Carolina:	
Ashe County	2
Beaufort County	2
Burke County	1
Caldwell County	2
Carteret County	1
Catawba County	1
Cherokee County	2
Clay County	1
Cleveland County	3
Columbus County	1
Davidson County	1
Durham County	3
Gaston County	2
Guilford County	1
Jackson County	1
Johnston County	3
Jones County	6
New Hanover County	3
Onslow County	1
Robeson County	1
Rockingham County	2
Rowan County	1
Stanly County	4
Union County	1
Wake County	2
Washington County	2
Wilkes County	1
Wilson County	5
Total	56
North Dakota:	
Burleigh County	2
McHenry County	1
Stutsman County	1
Williams County	1
Total	5
Ohio:	
Ashland County	1
Ashtabula County	1
Belmont County	1
Brown County	2
Butler County	4
Clermont County	4
Clinton County	1
Columbiana County	3
Crawford County	2
Cuyahoga County	4
Darke County	1
Fairfield County	1
Franklin County	3
Greene County	6
Hamilton County	1
Harrison County	5
Highland County	2
Jefferson County	2
Knox County	1
Lawrence County	12
Licking County	2
Logan County	2
Lucas County	2
Meigs County	3
Mercer County	1
Morgan County	1
Muskingum County	3
Noble County	3
Portage County	7
Scioto County	6
Seneca County	1
Stark County	1

TYPHOID FEVER—Continued.

State Reports for January, 1919—Continued.

Place.	New cases reported.
Ohio—Continued.	
Summit County	2
Trumbull County	2
Tuscarawas County	2
Wood County	3
Wyandot County	1
Total	99
Oregon:	
Hood River County	1
Pennsylvania:	
Adams County	2
Allegheny County	15
Armstrong County	20
Berks County	5
Bucks County	2
Butler County	69
Cambria County	2
Carbon County	1
Chester County	2
Cumberland County	2
Dauphin County	2
Elk County	1
Erie County	2
Pennsylvania—Continued.	
Fayette County	2
Greene County	1
Huntingdon County	47
Lancaster County	3
Lehigh County	1
Lycoming County	1
Mifflin County	4
Montgomery County	3
Montour County	1
Philadelphia County	20
Washington County	5
Westmoreland County	1
York County	4
Total	218
South Carolina:	
Chesterfield County	3
Marion County	1
Newberry County	6
Total	10
Wyoming:	
Albany County	1

City Reports for Week Ended Feb. 15, 1919.

Place.	Cases.	Deaths.
Akron, Ohio	1	
Atlantic City, N. J.	1	
Baltimore, Md.	7	3
Beloit, Wis.	1	
Birmingham, Ala.	1	
Boston, Mass.	5	
Butler, Pa.	2	
Charleston, W. Va.		1
Cleveland, Ohio	2	
Columbia, S. C.	1	
Concord, N. H.	1	
Covington, Ky.	1	2
Elizabeth, N. J.	2	
Englewood, N. J.	1	
Fall River, Mass.	1	1
Galveston, Tex.	1	
Harrisburg, Pa.	1	
Houston, Tex.	1	
Independence, Mo.	15	
Ironton, Ohio	2	
Joplin, Mo.	1	
Kalamazoo, Mich.	1	
Kansas City, Kans.	1	
Lackawanna, N. Y.	1	
Lawrence, Mass.	5	1
Little Rock, Ark.	1	
Lowell, Mass.	1	
Lynn, Mass.		1
Milwaukee, Wis.	3	1
Moline, Ill.	1	2
Newark, N. J.	1	
New Castle, Pa.	1	
New Haven, Conn.	1	1
New Orleans, La.	1	1
New York, N. Y.	5	2
Northampton, Mass.	3	
North Tonawanda, N. Y.	1	
Omaha, Nebr.	3	
Perth Amboy, N. J.	1	
Philadelphia, Pa.	4	
Pittsburgh, Pa.	2	
Portland, Me.	1	
Portland, Oreg.	1	
Pottstown, Pa.	1	
Richmond, Va.	1	
Rockford, Ill.	1	
St. Louis, Mo.	2	
South Bend, Ind.	1	
Syracuse, N. Y.	2	2
Tacoma, Wash.	1	
Toledo, Ohio	2	1
Washington, D. C.	1	
Wilmington, N. C.	1	
Zanesville, Ohio		1

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

State Reports for January, 1919.

State.	Cases reported.		
	Diphtheria.	Measles.	Scarlet fever.
Florida	35	237	10
Indiana	.....	230	270
Iowa	53	.....	111
Maine	15	3	66
Mississippi	44	390	43
New Jersey	654	186	342
New York (exclusive of New York City)	893	555	584
North Carolina	83	228	67
North Dakota	21	2	20
Pennsylvania	1,069	1,438	566
Ohio	416	543	419
Oregon	33	18	27
South Carolina	30	62	14
Wyoming	26	8	7

City Reports for Week Ended Feb. 15, 1919.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Aberdeen, S. Dak	15,926	1	.....	.....	.....	.....	.....	.....	.....	.....
Adams, Mass	14,406	5	1	.....	.....	.....	.....	.....	2	.....
Adrian, Mich	11,570	1	.....	.....	.....	.....	.....	.....	.....	.....
Akron, Ohio	93,604	30	.....	.....	10	.....	5	.....	1	.....
Alameda, Cal	28,433	3	.....	.....	.....	.....	.....	.....	.....	.....
Allentown, Pa	65,109	.....	1	.....	.....	.....	.....	.....	.....	.....
Alliance, Ohio	19,581	6	.....	.....	.....	.....	.....	.....	.....	.....
Alton, Ill	23,783	13	.....	.....	.....	.....	.....	.....	.....	1
Altoona, Pa	59,712	.....	1	.....	.....	.....	.....	.....	.....	.....
Anderson, Ind	24,230	7	.....	.....	.....	.....	.....	.....	.....	.....
Ann Arbor, Mich	15,041	10	1	.....	.....	.....	1	.....	.....	.....
Ansonia, Conn	16,954	7	.....	.....	.....	.....	1	.....	1	.....
Appleton, Wis	18,005	5	.....	.....	.....	.....	.....	.....	.....	.....
Arlington, Mass	13,073	3	.....	.....	.....	.....	1	.....	.....	.....
Asheville, N. C	25,656	24	.....	.....	2	.....	.....	.....	3	13
Ashtabula, Ohio	22,008	4	.....	.....	.....	.....	.....	.....	.....	1
Atchison, Kans	16,785	.....	.....	.....	1	.....	.....	.....	.....	.....
Atlanta, Ga	196,144	72	3	1	2	.....	3	.....	5	5
Atlantic City, N. J	59,515	12	.....	.....	.....	.....	9	.....	1	.....
Attleboro, Mass	19,776	7	.....	.....	.....	.....	.....	.....	.....	.....
Auburn, N. Y	37,823	9	.....	.....	.....	.....	1	.....	.....	.....
Austin, Tex	35,612	3	1	.....	.....	.....	.....	.....	.....	.....
Baltimore, Md	594,637	313	27	1	14	.....	125	1	48	27
Barre, Vt	12,401	2	.....	.....	.....	.....	.....	.....	.....	.....
Baton Rouge, La	17,544	4	.....	.....	.....	.....	.....	.....	.....	1
Battle Creek, Mich	30,159	.....	7	.....	8	.....	1	.....	.....	.....
Bayonne, N. J	72,204	.....	7	.....	2	.....	.....	.....	.....	.....
Beacon, N. Y	11,674	5	.....	.....	.....	.....	.....	.....	.....	.....
Beatrice, Nebr	10,437	10	.....	.....	.....	.....	.....	.....	.....	1
Beaumont, Tex	28,851	9	.....	.....	.....	.....	.....	.....	.....	.....
Bedford, Ind	10,613	5	.....	.....	.....	.....	.....	.....	.....	.....
Bellaire, Ohio	14,575	4	.....	.....	.....	.....	1	.....	.....	1
Belleville, Ill	31,154	.....	1	.....	.....	.....	2	.....	1	.....
Beloit, Wis	18,547	3	.....	.....	1	.....	1	.....	.....	.....
Berkeley, Cal	60,427	11	.....	.....	.....	.....	1	.....	.....	2
Berlin, N. H	13,892	2	.....	.....	.....	.....	.....	.....	.....	.....
Beverly, Mass	22,128	4	.....	.....	.....	.....	2	.....	.....	.....
Biddeford, Me	17,760	9	.....	.....	.....	.....	.....	.....	.....	1
Billings, Mont	15,123	.....	1	.....	.....	.....	4	.....	5	.....
Binghamton, N. Y	54,864	18	1	.....	.....	.....	1	.....	6	1
Birmingham, Ala	189,716	84	2	.....	8	.....	5	.....	10	13
Bloomfield, N. J	19,013	.....	.....	.....	.....	.....	1	.....	.....	.....
Bloomington, Ind	11,661	2	.....	.....	.....	.....	.....	.....	.....	1
Boise, Idaho	35,951	3	.....	.....	.....	.....	1	.....	.....	.....
Boston, Mass	767,813	362	52	6	8	.....	53	1	48	20

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Braddock, Pa.	22,060	.....	2	.....	.....	.....	1	.....	2	.....
Brazil, Ind.	10,472	4	1	.....	.....	.....	.....	.....	.....	.....
Bridgeport, Conn.	124,724	52	12	1	19	.....	2	.....	3	2
Bristol, Conn.	16,318	2	.....	.....	.....	.....	.....	.....	.....	.....
Brockton, Mass.	69,152	18	1	.....	.....	.....	1	.....	2	1
Brookline, Mass.	33,525	10	1	.....	.....	.....	1	.....	1	.....
Brunswick, Ga.	10,984	8	.....	.....	4	.....	.....	.....	1	.....
Buffalo, N. Y.	475,781	187	41	8	13	.....	16	1	13	15
Burlington, Iowa.	25,144	9	.....	.....	.....	.....	2	.....	.....	.....
Burlington, Vt.	21,802	12	.....	.....	7	.....	.....	.....	.....	1
Butler, Pa.	28,677	.....	4	.....	.....	.....	.....	.....	.....	.....
Butte, Mont.	44,057	.....	3	.....	.....	.....	7	.....	.....	.....
Cairo, Ill.	15,995	8	.....	.....	.....	.....	.....	.....	.....	2
Cambridge, Mass.	114,293	28	.....	.....	.....	.....	7	.....	5	4
Camden, N. J.	108,117	.....	3	.....	1	.....	1	.....	7	.....
Canton, Ohio.	62,566	18	.....	.....	3	.....	1	.....	.....	4
Carbondale, Pa.	19,597	.....	.....	.....	.....	.....	1	.....	.....	.....
Carlisle, Pa.	10,795	.....	.....	.....	1	.....	.....	.....	.....	.....
Cedar Rapids, Iowa.	38,033	.....	1	1	.....	.....	1	.....	.....	.....
Centralia, Ill.	11,838	.....	1	.....	.....	.....	1	.....	.....	.....
Champaign, Ill.	15,052	3	.....	.....	.....	.....	.....	.....	.....	.....
Chanute, Kans.	12,968	4	.....	.....	.....	.....	.....	.....	.....	.....
Charleston, S. C.	61,041	36	.....	.....	.....	.....	.....	.....	1	2
Charleston, W. Va.	31,000	15	3	.....	.....	.....	1	.....	.....	1
Charlotte, N. C.	40,759	18	.....	.....	7	.....	.....	.....	1	.....
Chelsea, Mass.	48,405	23	3	.....	.....	.....	.....	.....	3	2
Chester, Pa.	41,857	.....	1	.....	.....	.....	.....	.....	.....	.....
Cheyenne, Wyo.	11,320	.....	.....	.....	2	.....	1	.....	.....	.....
Chicago, Ill.	2,547,201	903	152	16	129	.....	65	2	289	78
Chicopee, Mass.	29,950	11	1	.....	.....	.....	.....	.....	2	1
Chillicothe, Ohio.	15,125	4	2	.....	.....	.....	2	.....	.....	.....
Cincinnati, Ohio.	414,248	162	4	2	5	.....	6	.....	20	18
Cleveland, Ohio.	692,259	249	43	5	4	.....	6	.....	18	23
Clinton, Iowa.	27,678	.....	3	.....	.....	.....	1	.....	.....	.....
Cohoes, N. Y.	25,292	5	1	.....	.....	.....	5	.....	1	.....
Colorado Springs, Colo.	38,965	13	.....	.....	.....	.....	3	.....	3	3
Columbia, S. C.	35,165	.....	.....	.....	2	.....	.....	.....	1	.....
Columbus, Ohio.	220,135	83	1	.....	1	.....	3	.....	4	7
Concord, N. H.	22,858	11	.....	.....	.....	.....	.....	.....	.....	1
Corpus Christi, Tex.	10,789	5	2	.....	.....	.....	.....	.....	.....	1
Council Bluffs, Iowa.	31,838	9	4	.....	2	.....	4	.....	.....	.....
Covington, Ky.	59,623	27	2	.....	.....	.....	1	.....	2	1
Cranston, R. I.	25,773	4	2	.....	.....	.....	1	.....	.....	.....
Cumberland, Md.	26,684	13	1	.....	31	.....	.....	.....	.....	.....
Dallas, Tex.	129,738	34	2	1	.....	.....	1	.....	7	2
Danbury, Conn.	22,931	4	.....	.....	.....	.....	.....	.....	.....	.....
Danvers, Mass.	10,037	.....	4	.....	.....	.....	.....	.....	.....	.....
Danville, Ill.	32,909	14	.....	.....	.....	.....	.....	.....	.....	.....
Danville, Va.	20,183	11	.....	.....	.....	.....	.....	.....	.....	4
Davenport, Iowa.	49,618	.....	.....	.....	.....	.....	1	.....	.....	.....
Dayton, Ohio.	128,939	40	.....	.....	1	.....	1	.....	4	3
Decatur, Ill.	41,483	10	.....	.....	.....	.....	.....	.....	1	.....
Dedham, Mass.	10,618	1	.....	.....	.....	.....	.....	.....	.....	.....
Denver, Colo.	268,439	101	8	1	.....	.....	6	.....	.....	19
Des Moines, Iowa.	104,052	.....	.....	.....	.....	.....	9	.....	1	.....
Detroit, Mich.	619,748	276	77	6	5	1	38	3	31	25
Dover, N. H.	13,276	6	.....	.....	.....	.....	.....	.....	.....	.....
Du Bois, Pa.	14,994	.....	1	.....	1	.....	1	.....	.....	.....
Dubuque, Iowa.	40,096	.....	5	.....	.....	.....	1	.....	.....	.....
Duluth, Minn.	97,077	27	7	1	1	.....	2	.....	3	3
Durham, N. C.	25,160	7	.....	.....	.....	.....	.....	.....	.....	.....
East Chicago, Ind.	30,286	12	.....	.....	.....	.....	.....	.....	.....	1
Easthampton, Mass.	10,656	.....	.....	.....	.....	.....	1	.....	.....	.....
East Liverpool, Ohio.	22,941	12	.....	.....	.....	.....	.....	.....	.....	.....
Easton, Pa.	30,854	.....	.....	.....	2	.....	.....	.....	.....	.....
East Orange, N. J.	43,761	15	3	.....	.....	.....	.....	.....	1	1
East Providence, R. I.	18,485	.....	.....	.....	.....	.....	2	.....	.....	.....
Eau Claire, Wis.	18,887	.....	.....	.....	8	.....	2	.....	.....	.....
Elgin, Ill.	28,562	11	3	.....	1	.....	1	.....	.....	1
Elizabeth, N. J.	88,830	.....	2	.....	.....	.....	2	.....	7	.....
El Paso, Tex.	69,149	60	1	.....	2	.....	.....	.....	.....	12
Englewood, N. J.	12,633	6	3	.....	.....	.....	.....	.....	.....	.....

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Erie, Pa.	76,502				1		2		4	
Escanaba, Mich.	15,854	2								
Eureka, Cal.	15,142	4								
Evanston, Ill.	29,304	9	1							
Evansville, Ind.	76,981	15	2						2	1
Everett, Mass.	40,160	12	5						1	
Everett, Wash.	37,265						2			
Fall River, Mass.	129,828	41	6	1	21	1	2		10	1
Fargo, N. Dak.	17,872	6					11	2		
Farrell, Pa.	[1] 10,190		1							
Findlay, Ohio.	[1] 14,858	7			5					
Fond du Lac, Wis.	21,486	2					5			
Fort Dodge, Iowa.	21,039						2			
Fort Scott, Kans.	10,564	1								
Fort Worth, Tex.	109,397	28	1		1		1		4	4
Fostoria, Ohio.	10,959	1	1							
Frederick, Md.	11,225	13								
Freeport, Ill.	19,844	5								
Fremont, Nebr.	10,080	3								
Fresno, Cal.	36,314	9							2	1
Galesburg, Ill.	24,629	9			3					
Galveston, Tex.	42,650	12					2			3
Geneva, N. Y.	13,915	4			1					
Gloversville, N. Y.	22,314								1	
Grand Forks, N. Dak.	16,342	3								
Grand Rapids, Mich.	132,861	38	1		5		3		5	
Great Falls, Mont.	[1] 13,948	10			3		1		1	
Green Bay, Wis.	30,017	13							2	2
Greenfield, Mass.	12,251	4	2				1		1	
Greensboro, N. C.	20,171	9								2
Greensburgh, Pa.	15,881		3							
Greenwich, Conn.	19,594						3			1
Hackensack, N. J.	17,412	14	1						1	1
Hammond, Ind.	27,016	8	1	1						
Harrisburg, Pa.	75,276		4		1		3			
Harrison, N. J.	17,345		1							
Hartford, Conn.	112,851	38	6		37		9		5	
Haverhill, Mass.	49,180	24	5						6	
Hazleton, Pa.	28,981		2				2			
Hibbing, Minn.	17,550						1			
Highland Park, Mich.	33,859	9	4				1		2	
High Point, N. C.	13,439								1	
Hoboken, N. J.	78,324	23	12	2	2				2	2
Holyoke, Mass.	66,503	15	3		1		6		3	3
Houston, Tex.	116,878	38	1		6				1	3
Hudson, N. Y.	12,898	4								
Hutchinson, Kans.	21,461		1		4					
Independence, Mo.	11,964	4			2					
Indianapolis, Ind.	283,622	98	16	3	6		10		7	8
Iowa City, Iowa.	11,626						2			
Ironton, Ohio.	14,079	1								
Ironwood, Mich.	15,095	4			1					1
Ithaca, N. Y.	16,017	7					6		1	1
Jamestown, N. Y.	37,431	15	3				3			2
Janesville, Wis.	14,411	3								
Jersey City, N. J.	312,557		25				6		13	
Johnstown, N. Y.	10,678	3	2				2			
Johnstown, Pa.	70,473		3		1				4	
Joplin, Mo.	33,400	4							2	
Kalamazoo, Mich.	50,408	19	3						2	3
Kansas City, Kans.	102,096		9						2	
Kansas City, Mo.	365,816	134	9		30	1	7	1	4	10
Kearny, N. J.	24,325	12	1						1	
Keene, N. H.	10,725	5								
Kenosha, Wis.	32,833	7	7		13		3		2	
Kokomo, Ind.	21,929	3	1				1			1
Lackawanna, N. Y.	16,219	9	2		4		2		1	
La Crosse, Wis.	31,833	18		1						1
La Fayette, Ind.	21,481	6	1				1			
Lakewood, Ohio.	23,813	18	1	1					4	4

[1] Population April 15, 1910.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Lancaster, Ohio	16,086	8	.....	.....	3	.....	1	.....	.....	1
Lancaster, Pa	51,437	.....	.....	.....	50	.....	1	.....	.....	.....
Lawrence, Kans	13,477	5	.....	.....	.....	.....	.....	.....	.....	1
Lawrence, Mass	102,923	30	1	.....	.....	.....	1	.....	3	3
Leavenworth, Kans	[1] 19,363	4	6	.....	.....	.....	3	.....	.....	.....
Lima, Ohio	37,145	12	.....	.....	.....	.....	5	.....	.....	4
Lincoln, Nebr	46,957	16	3	1	1	.....	7	1	.....	3
Lincoln, R. I	10,473	.....	.....	.....	.....	.....	1	.....	.....	.....
Little Rock, Ark	58,716	15	.....	.....	1	.....	4	.....	3	2
Logansport, Ind	21,338	5	.....	.....	1	.....	.....	.....	.....	1
Long Beach, Cal	29,163	12	.....	.....	1	.....	.....	.....	1	2
Long Branch, N. J	15,733	2	.....	.....	.....	.....	.....	.....	.....	1
Lorain, Ohio	38,266	8	2	.....	.....	.....	2	.....	1	.....
Los Angeles, Cal	535,485	160	9	2	5	.....	4	.....	38	25
Louisville, Ky	240,808	85	2	.....	4	.....	7	.....	9	7
Lowell, Mass	114,366	38	3	.....	3	.....	7	.....	6	2
Ludington, Mich	10,586	.....	.....	.....	1	.....	3	.....	.....	.....
Lynchburg, Va	33,107	10	.....	.....	.....	.....	.....	.....	.....	3
Lynn, Mass	104,534	28	8	2	1	.....	4	.....	2	2
McKeesport, Pa	48,299	.....	2	.....	1	.....	1	.....	1	.....
Madison, Wis	31,315	11	.....	.....	18	.....	3	.....	.....	1
Malden, Mass	52,243	16	1	.....	.....	.....	3	.....	2	.....
Manchester, Conn	15,859	2	.....	.....	3	1	.....	.....	1	.....
Manchester, N. H	79,607	27	4	1	.....	.....	.....	.....	4	1
Marinette, Wis	[1] 14,610	7	.....	.....	6	.....	.....	.....	.....	2
Marion, Ind	19,923	7	.....	.....	3	.....	23	.....	.....	1
Marquette, Mich	12,555	2	.....	.....	.....	.....	.....	.....	.....	.....
Martinsburg, W. Va	12,984	.....	.....	1	1	.....	.....	.....	.....	.....
Martins Ferry, Ohio	10,135	4	4	.....	.....	.....	1	.....	.....	2
Mason City, Iowa	14,938	7	.....	.....	.....	.....	.....	.....	2	.....
Medford, Mass	26,681	10	2	.....	.....	.....	1	.....	.....	1
Melrose, Mass	17,724	3	.....	.....	.....	.....	.....	.....	.....	.....
Memphis, Tenn	151,877	56	4	.....	12	.....	2	.....	7	8
Meriden, Conn	29,431	.....	1	.....	.....	.....	3	.....	.....	.....
Methuen, Mass	14,320	7	.....	.....	.....	.....	.....	.....	.....	.....
Middletown, Ohio	16,384	7	.....	.....	5	.....	.....	.....	.....	.....
Milford, Mass	14,280	11	.....	.....	.....	.....	.....	.....	.....	.....
Milwaukee, Wis	445,008	110	11	2	3	.....	30	.....	21	8
Minneapolis, Minn	373,448	95	7	.....	2	.....	13	.....	13	15
Missoula, Mont	19,075	7	.....	.....	.....	.....	3	1	.....	.....
Mobile, Ala	59,291	25	2	.....	3	.....	.....	.....	.....	2
Moline, Ill	27,976	3	3	1	.....	.....	.....	.....	.....	.....
Monessen, Pa	23,070	.....	2	.....	.....	.....	.....	.....	.....	.....
Montclair, N. J	27,087	2	1	.....	.....	.....	1	.....	1	.....
Montgomery, Ala	44,039	5	.....	.....	.....	.....	2	.....	.....	.....
Morgantown, W. Va	14,444	1	.....	.....	1	.....	.....	.....	2	.....
Morristown, N. J	13,410	5	1	.....	.....	.....	1	.....	.....	.....
Mount Vernon, N. Y	37,991	11	.....	.....	.....	.....	1	.....	2	.....
Muskogee, Okla	47,173	.....	.....	.....	.....	.....	2	.....	.....	.....
Nanticoke, Pa	23,811	.....	.....	.....	5	.....	1	.....	.....	.....
Nashua, N. H	27,541	7	.....	.....	.....	.....	6	.....	.....	2
Nashville, Tenn	118,136	61	1	.....	20	.....	6	.....	3	1
Natick, Mass	10,140	2	1	.....	.....	.....	1	.....	.....	.....
Newark, N. J	418,789	142	55	4	3	.....	22	.....	34	20
Newark, Ohio	30,317	9	2	.....	2	.....	.....	.....	.....	1
New Bedford, Mass	121,622	40	2	.....	.....	.....	3	.....	7	3
New Britain, Conn	55,385	13	1	.....	22	.....	5	.....	.....	2
New Brunswick, N. J	25,855	.....	.....	.....	12	.....	.....	.....	2	.....
Newburgh, N. Y	29,893	16	.....	.....	.....	.....	1	.....	1	2
Newburyport, Mass	15,291	4	1	.....	.....	.....	.....	.....	.....	.....
New Castle, Pa	41,915	.....	3	.....	.....	.....	1	.....	.....	.....
New Haven, Conn	152,275	52	2	.....	17	1	3	.....	5	3
New London, Conn	21,199	9	3	.....	.....	.....	2	.....	.....	.....
New Orleans, La	377,010	176	11	1	.....	.....	3	.....	36	25
Newport, Ky	32,133	.....	.....	.....	.....	.....	.....	.....	2	2
Newport, R. I	30,585	5	1	.....	.....	.....	.....	.....	.....	.....
Newton, Mass	44,345	11	1	.....	.....	.....	.....	.....	6	1
New York, N. Y	5,737,492	2,090	340	38	32	1	123	5	312	177
Niagara Falls, N. Y	38,465	14	3	.....	.....	.....	.....	.....	4	3
Norfolk, Va	91,148	.....	.....	.....	.....	.....	1	.....	2	1

[1] Population April 15, 1910.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Norristown, Pa	31,969	.....	1	.....	2	.....	.....	.....	1	.....
North Adams, Mass	[1] 22,019	7	.....	.....	.....	.....	.....	.....	4	.....
Northampton, Mass	20,006	7	.....	.....	.....	.....	4	.....	.....	.....
North Tonowanda, N. Y	14,060	3	.....	.....	.....	.....	1	.....	.....	.....
North Yakima, Wash	22,058	.....	1	.....	1	.....	5	.....	.....	.....
Norwalk, Conn	27,332	.....	1	.....	.....	.....	.....	.....	.....	.....
Oakland, Cal	206,405	42	5	.....	1	.....	4	.....	3	2
Oak Park, Ill	27,816	10	1	.....	3	.....	1	.....	.....	.....
Ogdensburg, N. Y	16,845	6	.....	.....	.....	.....	.....	.....	.....	.....
Oil City, Pa	20,102	.....	1	.....	.....	.....	.....	.....	.....	.....
Oklahoma City, Okla	97,588	20	.....	.....	2	.....	1	.....	.....	2
Olean, N. Y	16,927	7	.....	.....	.....	.....	.....	.....	.....	.....
Omaha, Nebr	177,777	47	6	.....	10	.....	2	.....	.....	2
Orange, Conn	14,393	2	1	.....	.....	.....	.....	.....	.....	1
Orange, N. J	33,636	12	3	.....	.....	.....	.....	.....	1	1
Ossining, N. Y	14,064	21	.....	.....	.....	.....	1	.....	.....	.....
Parkersburg, W. Va	21,059	11	.....	.....	1	.....	.....	.....	2	3
Pasadena, Cal	49,620	10	.....	.....	.....	.....	.....	.....	.....	1
Passaic, N. J	74,478	20	4	.....	.....	.....	.....	.....	2	1
Peekskill, N. Y	19,034	4	.....	.....	.....	.....	.....	.....	.....	.....
Pekin, Ill	10,973	.....	3	.....	.....	.....	.....	.....	.....	.....
Peoria, Ill	72,184	27	5	.....	.....	.....	2	1	.....	3
Perth Amboy, N. J	42,646	12	3	.....	.....	.....	.....	.....	3	1
Philadelphia, Pa	1,735,514	728	86	8	14	1	69	1	82	76
Phillipsburg, N. J	15,879	6	.....	.....	.....	.....	1	.....	3	.....
Phoenixville, Pa	11,871	.....	.....	.....	6	.....	.....	.....	.....	.....
Pine Bluff, Ark	17,777	.....	.....	.....	.....	.....	1	.....	.....	.....
Piqua, Ohio	14,275	3	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh, Pa	586,196	.....	24	.....	3	.....	19	.....	25	.....
Pittsfield, Mass	39,678	12	.....	.....	.....	.....	.....	.....	.....	.....
Pittston, Pa	18,975	.....	1	.....	.....	.....	.....	.....	.....	.....
Plainfield, N. J	24,330	11	1	.....	.....	.....	1	.....	.....	.....
Plattsburg, N. Y	13,111	8	3	.....	.....	.....	.....	.....	.....	1
Plymouth, Mass	14,001	5	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth, Pa	19,439	.....	.....	.....	15	.....	1	.....	.....	.....
Pontiac, Mich	18,606	14	6	.....	2	.....	.....	.....	.....	.....
Port Chester, N. Y	16,727	6	2	.....	.....	.....	1	.....	.....	1
Portland, Me	64,720	16	1	.....	.....	.....	5	.....	.....	.....
Portland, Oreg	308,399	64	8	1	2	.....	3	.....	11	5
Portsmouth, Va	40,693	.....	.....	.....	.....	.....	.....	.....	.....	2
Pottstown, Pa	16,987	.....	6	.....	43	.....	.....	.....	.....	.....
Pottsville, Pa	22,717	.....	2	.....	9	.....	1	.....	1	.....
Poughkeepsie, N. Y	30,786	12	.....	.....	.....	.....	.....	.....	1	1
Providence, R. I	259,895	103	26	.....	.....	.....	8	.....	.....	12
Quincy, Ill	36,832	10	.....	.....	1	.....	9	.....	.....	1
Quincy, Mass	39,022	10	2	.....	.....	.....	1	.....	6	1
Racine, Wis	47,465	16	.....	.....	.....	.....	1	.....	2	3
Rahway, N. J	10,361	6	.....	.....	.....	.....	.....	.....	1	1
Raleigh, N. C	20,274	21	1	.....	3	.....	.....	.....	.....	3
Reading, Pa	111,607	.....	2	.....	152	.....	.....	.....	.....	.....
Redlands, Cal	14,573	2	.....	.....	.....	.....	2	.....	.....	.....
Richmond, Va	158,702	61	3	.....	2	.....	2	.....	3	6
Riverside, Cal	20,496	7	.....	.....	.....	.....	.....	.....	2	4
Roanoke, Va	46,282	14	4	.....	7	.....	1	.....	.....	1
Rochester, N. Y	264,714	68	9	.....	2	1	16	.....	14	3
Rockford, Ill	56,739	20	2	2	4	.....	2	.....	3	1
Rock Island, Ill	29,452	8	.....	.....	.....	.....	.....	.....	.....	.....
Rocky Mount, N. C	12,673	2	.....	.....	.....	.....	.....	.....	.....	.....
Rome, Ga	15,607	.....	.....	.....	.....	.....	.....	.....	1	.....
Rutland, Vt	15,038	6	.....	.....	.....	.....	.....	.....	.....	.....
Saginaw, Mich	56,469	17	2	.....	.....	.....	2	.....	1	1
St. Joseph, Mo	88,498	45	8	.....	.....	.....	4	1	.....	5
St. Louis, Mo	768,630	239	38	2	4	.....	7	.....	36	17
St. Paul, Minn	252,465	62	19	1	13	.....	18	1	21	7
Salem, Mass	49,346	22	3	1	.....	.....	3	.....	1	2
Salem, Oreg	21,274	6	.....	.....	.....	.....	.....	.....	1	.....
Salt Lake City, Utah	121,623	34	5	1	1	.....	.....	.....	.....	1
San Angelo, Tex	[1] 10,321	8	.....	.....	.....	.....	.....	.....	.....	6
San Antonio, Tex	128,215	26	.....	.....	3	.....	.....	.....	18	15
San Bernardino, Cal	17,616	4	.....	.....	.....	.....	.....	.....	.....	1

[1] Population Apr. 15, 1910.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City Reports for Week Ended Feb. 15, 1919—Continued.

City.	Population as of July 1, 1917 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
San Diego, Cal	56,412								3	4
Sandusky, Ohio	20,226	6					1			
Sanford, Me	11,217	3								
San Francisco, Cal	471,023	150	6				2	1	26	20
Santa Barbara, Cal	15,360	4								
Santa Cruz, Cal	15,150	2								
Saratoga Springs, N. Y	13,839	7			1					
Saugus, Mass	10,210									1
Sault Ste. Marie, Mich	14,130	3								
Schenectady, N. Y	103,774	13	3						6	2
Scranton, Pa	149,541		14				9		13	
Seattle, Wash	366,445		7		15		11			
Shamokin, Pa	21,274		5				5			
Sharon, Pa	19,156		1		1					
Shenandoah, Pa	29,753		2		9		1		1	
Sioux City, Iowa	58,568		2				1			
Sioux Falls, S. Dak	16,887	7								
Somerville, Mass	88,618	24	6		6		9		3	
South Bend, Ind	70,967	25	1		28	1	2			2
Southbridge, Mass	14,465	1							1	
Spartanburg, S. C	21,985	5			7					
Spokane, Wash	157,656				1					
Springfield, Ill	62,623	17	1				1			
Springfield, Mass	108,668	67	1		1		1		2	3
Springfield, Mo	41,169	12								2
Springfield, Ohio	52,296	17			25				5	2
Steelton, Pa	15,759	2								
Steubenville, Ohio	28,259	6	2							
Stillwater, Minn	[1] 10,198		3							
Stockton, Cal	36,209	10								1
Streator, Ill	14,313	4					1	1		
Superior, Wis	47,167	10	2				4			
Syracuse, N. Y	158,559	57	5	1			13		4	2
Tacoma, Wash	117,446		1		6		15		1	9
Taunton, Mass	36,610	22			6		1		1	1
Terre Haute, Ind	67,361	28								1
Tiffin, Ohio	12,962	7	1						1	
Toledo, Ohio	202,010	70	10		1		13		13	8
Topeka, Kans	49,538	27	1						1	1
Trenton, N. J	113,974	58	8	2	2				4	7
Troy, N. Y	78,094	33	3		2		6		7	5
Utica, N. Y	89,272	21	3		9				4	2
Walla Walla, Wash	26,067						1			
Waltham, Mass	31,011	7					3			
Washington, D. C	369,282	149	31	1	2		9		38	17
Waterbury, Conn	89,201	1	4		2		1			1
Watertown, Mass	15,188	3							1	
Watertown, N. Y	30,404			1			1			
Wausau, Wis	19,666	4			1		1			
Westfield, Mass	18,769	6	2	1			2			
West Hoboken, N. J	44,386	8	1				1		2	1
Wheeling, W. Va	43,657								1	2
White Plains, N. Y	23,331	7					1			1
Wichita, Kans	73,597	19			3		2		1	2
Wilkes-Barre, Pa	78,334		4		2				6	
Wilkinsburg, Pa	23,899						1		1	
Williamsport, Pa	34,123		1							
Wilmington, Del	95,369	37	8	1	1					2
Wilmington, N. C	30,400	19	1				1		1	2
Winchester, Mass	10,812	6						2		
Winona, Minn	[1] 18,583	12								
Winston-Salem, N. C	33,136	18	1						4	2
Winthrop, Mass	13,105						1			
Woburn, Mass	16,076	3		1						
Worcester, Mass	166,106	87	5	1	9		1		5	7
Yonkers, N. Y	103,066	34	6				3			4
Youngstown, Ohio	112,282	64	2	1	13		5			2
Zanesville, Ohio	31,320	11			7	1				

[1] Population Apr. 15, 1910.

FOREIGN.

BRAZIL.

Influenza—Para.

During the month of December, 1918, 7,100 cases of influenza were reported at Para. The number of fatalities from influenza reported during this period was 103; from pneumonia 40 fatalities were reported. (Population of Para, officially estimated, 186,000.)

CANADA.

Influenza—Province of Ontario.

During the months of October, November, and December, 1918, fatal cases of influenza were reported in the Province of Ontario as follows: October, 3,015; November, 2,608; December, 1,568. During the month of January, 1919, there were reported 1,514 fatal cases, of which about 400 occurred during the three preceding months, but were not reported during those months. Of the fatalities reported for the month of January, including late returns, 279 were reported for Toronto, 72 for Hamilton, 96 for London, and 44 for Ottawa. Influenza was reported present with fatal cases in 47 localities in the Province of Ontario. (Population of the Province, about 2,523,000.)

Influenza—Vancouver.

During the two weeks ended January 18, 1919, 850 cases of influenza with 103 fatalities were reported at Vancouver, British Columbia, Canada.

CHINA.

Examination of Rats—Hongkong.

During the period from November 3 to December 28, 1918, 13,959 rats were examined at Hongkong. No plague infection was found.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Diseases.	Jan. 21–31, 1919.		Remaining under treatment Jan. 31, 1919.
	New cases.	Deaths.	
Diphtheria	4		3
Leprosy			17
Malaria	29		[1] 40
Paratyphoid fever	3	1	4
Typhoid fever	10	3	32

[1] From the interior, 35.

Influenza—Habana—Regla.

During the period from January 21 to 31, 1919, 224 cases of influenza were reported at Habana and 8 cases at Regla.

DOMINICAN REPUBLIC.

Further Relative to Influenza.[1]

During the four weeks ended January 25, 1919, 1,101 cases of influenza with 92 fatalities were reported in the Dominican Republic.

GREECE.

Epidemic Cerebrospinal Meningitis—Athens.

Epidemic cerebrospinal meningitis was reported present at Athens, Greece, February 25, 1919.

FIJI ISLANDS.

Influenza.

Influenza was reported present December 3, 1918, in the Fiji Islands, Pacific Ocean, with heavy death rate.

ITALY.

Influenza—Leghorn.

Influenza was reported present at Leghorn, Italy, in October, 1918, with the greatest prevalence occurring among troops. During the period from November 4 to December 8, 1918, 997 cases with 163 fatalities were reported. During the week ended January 5, 1919, 244 cases with 25 fatalities were reported, and during the week ended January 19, 1919, 118 cases with 13 fatalities. (Population, officially estimated, 106,000.)

[1] Public Health Reports, Dec. 27, 1918, p. 2354, and Jan. 24, 1919, p. 159

MEXICO.

Influenza—October, 1918–January, 1919.

Epidemic influenza has been stated to have entered Mexico during the first week in October, 1918, and to have spread rapidly throughout the country. At the end of January, 1919, a general decline in epidemic prevalence of influenza was reported. The total number of fatalities from the disease has been variously estimated, some estimates running as high as half a million. In the State of Chiapas one-tenth of the population is estimated to have died from the results of influenza; in the city of Tapachula, 3,000 deaths were reported in a population of 30,000. A statement published at Mexico City under date of January 2, 1919, for 25 States and the Federal district, shows the greatest reported mortality from influenza to have occurred in the State of Michoacan, viz, 48,000 (population, 991,600), and the lowest in the State of Colima, viz, 900 (population, 77,700). No estimates have been received for Campeche, Morelos, Yucatan, Lower California, or the Territory of Quintana Roo. On January 2, 1919, the epidemic was reported to be seriously prevalent in the States of Chiapas and Tabasco.

NETHERLANDS.

Typhus Fever—Rotterdam.

From January 30, 1919, to February 27, 1919, 462 cases of typhus fever with 46 fatalities were reported at Rotterdam, Netherlands.

RUSSIA.

Typhus Fever—Petrograd.

Under date of February 2, 1919, typhus fever was reported present at Petrograd with approximately 225 cases reported from date of outbreak and a daily occurrence of about 20 cases.

TONGAN ISLANDS.

Influenza.

Influenza was reported present December 3, 1918, in the Tongan Islands, Pacific Ocean, with heavy death rate.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

Reports Received During Week Ended Mar. 7, 1919.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	Dec. 8–28	1,325	1,016	
Calcutta	Dec. 15–21		89	
Do	Dec. 29–Jan. 4		27	
Madras	Dec. 15–21	50	17	
Rangoon	do	6	6	
Java:				
West Java				Nov. 28–Dec. 11, 1918: Cases, 16; deaths, 11.
Batavia	Nov. 28–Dec. 11	11	6	
Philippine Islands:		6	3	
Manila	Jan. 5–11			Jan. 5–11, 1919: Cases, 135; deaths, 85.
Provinces				
Bataan	Jan. 5–11	2	2	
Batangas	do	5	1	
Bulacan	do	8	3	
Capiz	do	7	3	
Cavite	do	4	3	
Ilocos Sur	do	16	5	
Iloilo	do	2	1	
Laguna	do	18	11	
Lanao	do	8	4	
Misamis	do	14	10	
Oriental Negros	do	5	3	
Pampanga	do	4	3	
Pangasinan	do	23	20	
Tayabas	do	1	1	
Zamboanga	do	18	15	
Manila	Jan. 12–18	4	1	
Provinces				Jan. 12–18, 1919: Cases, 121, deaths, 97.
Batangas	Jan. 12–18	5	7	
Bohol	do	8	4	
Bulacan	do	4	1	
Capiz	do	18	10	
Cavite	do	2	2	
Cebu	do	13	12	
Ilocos Sur	do	3	2	
Iloilo	do	13	13	
Laguna	do	12	13	
Misamis	do	9	7	
Nueva Ecija	do	3	2	
Pampanga	do	9	7	
Pangasinan	do	19	16	
Tayabas	do	2	1	
Zamboanga	do	1		

PLAGUE.

Ecuador:				
Guayaquil	Jan. 1–15	7	2	
India				Dec. 8–28, 1918: Cases, 1,731; deaths, 3,320.
Bombay	Dec. 8–28	3	2	
Calcutta	Dec. 22–28		1	
Karachi	Dec. 23–31	1	1	
Madras	Dec. 15–21	20	12	
Do	Dec. 29–Jan. 4	123	52	
Madras Presidency	Dec. 15–21	172	115	
Do	Dec. 29–Jan. 4	92	48	
Rangoon	Dec. 15–21	8	5	
On vessel:				
S. S. Japan	Jan. 14	1	1	At Suez quarantine station from Bombay.

SMALLPOX.

Canada:				
New Brunswick—				
Campbellton	Jan. 12–18	1		
St. John	Feb. 16–22	1		
Nova Scotia—				
Halifax	Feb. 9–15	30		
Sydney	do	1		
Quebec—				
Quebec	Feb. 9–15	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended Mar. 7, 1919—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	Dec. 8–28			Present.
Foochow	Dec. 22–28			Do.
Nanking	Dec. 29–Jan. 4			Do.
Chosen (Korea):				
Chemulpo	Dec. 1–31	13	4	
India:				
Bombay	Dec. 8–28	15	4	
Calcutta	Dec. 15–28		6	
Do	Dec. 29–Jan. 4		6	
Karachi	Dec. 15–21	8	1	
Madras	do	5	4	
Do	Dec. 29–Jan. 4	22	6	
Rangoon	Dec. 15–21	9	2	
Italy:				
Genoa	Jan. 9–15	1		
Java:				
West Java				Nov. 28–Dec. 11, 1918: Cases, 161; deaths, 42.
Batavia	Nov. 28–Dec. 11	11	7	
Mesopotamia:				
Bagdad	Dec. 7–13	7	6	
Newfoundland:				
St. Johns	Feb. 9–14	1		
Outports—				
Little Paradise	do	1		
Mercers Cove	do	1		
Philippine Islands:				
Manila	Jan. 5–11	1		Varioloid, 1.
Spain:				
Barcelona	Jan. 9–15		2	
Cadiz	Dec. 1–31		15	
Valencia	Dec. 29–Jan. 11	33	4	

TYPHUS FEVER.

Egypt:				
Alexandria	Jan. 1–14	12	7	
Great Britain:				
Glasgow	Jan. 5–Feb. 1	8	1	
Japan:				
Nagasaki	Jan. 13–19	1	1	
Netherlands:				
Rotterdam				Jan. 30, 1919–Feb. 7, 1919: Cases, 462; deaths, 46.

YELLOW FEVER.

Ecuador:				
Chobo	Jan. 1–15	1		
Daule	do	1	1	
Guayaquil	do	52	30	
Naranjal	do	1	1	
Naranjito	do	1	1	
Payo (Hacienda)	do	1		

Reports Received from Dec. 28, 1918, to Feb. 28, 1919.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo	Nov. 17–30	4	5	
Germany:				
Berlin	To Oct. 5	17	11	
Bremen	Oct. 13–19	1		On a barge.
Marienwerder				1 case in October, 1918, on a barge in canal.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Dec. 28, 1918, to Feb. 28. 1919—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	Aug. 18–Nov. 9	26	15	
Calcutta	Sept. 29–Dec. 14		152	Report for Nov. 23, 1918, missing.
Madras	Oct. 5–Dec. 14	141	95	
Rangoon	do	29	27	
Indo-China:				
Anam	Aug. 1–31	5	5	
Cambodia	do	98	71	
Cochin-China	do	110	89	
Saigon	Oct. 7–Dec. 22	75	45	
Tonkin	Aug. 1–31	1		
Java:				
East Java				Oct. 7–21, 1918: Cases, 109; deaths, 94.
Surabaya (district)	Oct. 7–Nov. 18	636	391	
Mid-Java				Sept. 25–Nov. 27, 1918: Cases, 2,883; deaths, 1,707.
Samarang	Sept. 25–Oct. 16	120	111	
West Java				Oct. 2–Nov. 27, 1918: Cases, 396; deaths, 227.
Batavia	Oct. 2–Nov. 27	280	142	
Mesopotamia:				
Bagdad	Oct. 11–18	8		
Philippine Islands:				
Manila	Sept. 22–Dec. 28	181	121	
Do	Dec. 29–Jan. 4	4	3	
Provinces				Nov. 2–9, 1918: Cases, 511; deaths, 417. Nov. 17–Dec. 28, 1918: Cases, 1,203; deaths, 858. Dec. 29, 1918–Jan. 4, 1919: Cases, 88; deaths, 73.
Albay	Dec. 15–21	1	1	
Bataan	Nov. 17–Dec. 28	38	32	
Batangas	Nov. 2–9	156	141	
Do	Nov. 17–Dec. 28	79	65	
Do	Dec. 29–Jan. 4	3	2	
Bohol	Nov. 2–9	19	17	
Do	Nov. 17–Dec. 21	12	5	
Bulacan	Oct. 27–Nov. 2	5	6	
Do	Nov. 17–Dec. 28	44	30	
Do	Dec. 29–Jan. 4	12	10	
Capiz	Dec. 22–28	7	5	
Cavite	Oct. 27–Nov. 2	38	28	
Do	Nov. 17–Dec. 21	163	75	
Do	Dec. 29–Jan. 4	10	10	
Cebu	Dec. 15–21	41	20	
Ilocos Sur	Dec. 8–28	17	8	
Do	Dec. 29–Jan. 4	11	10	
Iloilo	Oct. 27–Nov. 2	9	6	
Do	Nov. 17–Dec. 21	70	51	
Laguna	Oct. 27–Dec. 28	18	11	
Do	Dec. 29–Jan. 4	6	3	
Mindoro	Nov. 21–30	4	5	
Misamis	Oct. 27–Nov. 2	6	5	
Do	Nov. 17–Dec. 28	75	48	
Oriental Negros	Nov. 2–9	20	8	
Do	Nov. 17–Dec. 7	6	6	
Pampanga	Nov. 24–Dec. 14	4	4	
Pangasinan	Nov. 2–9	236	192	
Do	Nov. 17–Dec. 28	428	313	
Do	Dec. 29–Jan. 4	45	37	
Rizal	Oct. 27–Nov. 2	3	1	
Do	Nov. 24–30	16	5	
Samar	Dec. 15–21	8	1	
Sorsogon	Nov. 17–23	8	4	
Tayabas	Nov. 2–9	7	4	
Do	Nov. 17–Dec. 28	54	25	
Do	Dec. 29–Jan. 4	1	1	
Union	Nov. 2–Dec. 28	18	14	
Zamboanga	Dec. 8–28	27	19	
Poland:				
Warsaw	Sept. 22–Oct. 5	2		
Russia:				
Petrograd	To July 16	3,388	1,054	
Do	July 17–Sept. 11	3,479	1,455	In civil and military hospitals. In military hospitals, July 5–Aug. 21, 1918: Cases, 884; deaths, 783.
Ukrania—				
Ekaterinoslav	Sept. 1–20	7	6	
Odessa	do	55		Sept. 1–20, 1918: 11 cases on *s. s.* Helena.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Dec. 28, 1918, to Feb. 28, 1919—Continued.

PLAGUE.

China:				
Amoy				Present.
Chungking	Dec. 1-7			Do.
Hongkong	Oct. 26-Dec. 8	1	1	
Do	Nov. -Dec. 28	1	2	
Nanking	Nov. 2-9			Always prevalent.
Ceylon:				
Colombo	Oct. 27-Nov. 2	1	1	
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	15	3	
Taura	Dec. 15-31	1	1	
Egypt				Jan. 1-Nov. 21, 1918: Cases, 357; deaths, 153.
India				Sept. 23-Dec. 7, 1918: Cases, 19,548; deaths, 15,049.
Bombay	Aug. 18-Dec. 7	38	27	
Karachi	Oct. 19-26	16	16	
Madras	Dec. 7-14	3	1	
Madras Presidency	Oct. 13-Dec. 14	910	624	
Rangoon	Oct. 5-Dec. 14	76	76	
Indo-China:				
Anam	Aug. 1-31	15	10	
Cambodia	do		23	
Cochin-China	do	11	11	
Saigon	Oct. 7-Nov. 21	5	1	
Java:				
East Java				Oct. 7-Nov. 18, 1918: Cases, 78; deaths, 78.
Surabaya (district)	Oct. 7-Nov. 18	61	61	
Mid-Java				Sept. 25-Oct. 16, 1918: Cases, 14; deaths, 14.
Samarang	Sept. 25-Oct. 16	6	6	
Mesopotamia:				
Bagdad	Nov. 16-29	5	2	
Siam:				
Bangkok	Sept. 21-28	4	3	
Do	Oct. 5-12	2	2	
Venezuela:				
Caracas	Dec. 30	1		

SMALLPOX.

Algeria:				
Algiers	Oct. 1-Dec. 31	2	1	
Canada:				
New Brunswick—				
Campbellton	Dec. 22-28	1		
Do	Jan. 5-11	1		
St. John	Nov. 8-14	3		
Do	Jan. 26-Feb. 8	5		
Nova Scotia—				
Bear River	Dec. 29-Jan. 4			Present.
Bigbee	Jan. 10			Do.
Digby	do			Do.
Halifax	Dec. 7-28	10		
Do	Jan. 5-Feb. 8	67		
Middleton	Dec. 29-Jan. 4			Do.
Sydney	Jan. 5-25	2		
Ontario—				
North Bay	Jan. 19-25	1		
Ottawa	Jan. 12-Feb. 8	6		
Toronto	Feb. 2-8	1		
Quebec—				
Montreal	Jan. 24-Dec. 21	2		
Do	Jan. 12-25	12		
Paspebiac	do	2		
Quebec	Dec. 15-21	1		
Do	Dec. 29-Feb. 1	4		
China:				
Amoy	Oct. 13-Dec. 8			Present.
Canton	Nov. 17-23			Do.
Chungking	Nov. 10-Dec. 28			Do.
Foochow	Nov. 24-Dec. 21			Do.
Hongkong	Dec. 15-21	1	1	
Nanking	Dec. 1-28			Do.
Do	Jan. 5-11			Do.
Chosen:				
Chemulpo	Nov. 1-30	2		
Denmark:				
Copenhagen	Nov. 9-Dec. 28	12		
Do	Dec. 29-Jan. 11	8		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Dec. 28, 1918, to Feb. 28, 1919—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Egypt:				
Alexandria	Dec. 17–23	1	1	
India:				
Bombay	Aug. 18–Dec. 6	20	4	
Calcutta	Sept. 29–Dec. 14		11	Report for week ended Nov. 23, 1918, missing.
Karachi	Sept. 29–Oct. 5	1	1	
Madras	Oct. 5–Dec. 14	47	30	
Rangoon	Oct. 20–Dec. 14	23	4	
Indo-China:				
Anam	Aug. 1–31	29	8	
Cambodia	do	78	40	
Cochin-China	do	97	27	
Saigon	Oct. 7–Dec. 22	20	5	
Tonkin	Aug. 1–31	5		
Japan:				
Kobe	Oct. 26–Dec. 28	186	46	
Do	Dec. 29–Jan. 4	37	3	
Java:				
East Java				Oct. 7–Nov. 27, 1918: Cases, 21.
Surabaya (district)	Oct. 7–Nov. 18	15		
Mid-Java				Sept. 25–Nov. 27, 1918: Cases, 164.
West Java				Oct. 2–Nov. 27, 1918: Cases, 648; deaths, 221.
Batavia	Oct. 2–Nov. 27	174	144	
Mesopotamia:				
Bagdad	Oct. 11–Nov. 29	281	75	
Mexico:				
Ciudad Juarez	Nov. 24–30	1		
Mexico City	Sept. 22–Dec. 28	23		
Do	Dec. 29–Jan. 25	8		
Newfoundland:				
St. John's	Dec. 6–20	4		
Do	Dec. 28–Feb. 7	5		
Outports—				
Avondale	do	4		
Blaine Harbor	Dec. 14–20	2		
Bay of Islands	Jan. 11–17	6		
Bay Roberts	Dec. 21–27	1		
Bonavista	Jan. 26–31	1		
Bryants Cove	Dec. 7–13	3		
Burin	do	4		
Coleys Point	Dec. 14–20	1		
Curling	Jan. 26–31	3		
Frenchmans Cove	Feb. 1–7	1		
Kings Cove	Jan. 18–24	1		
McIvers	Feb. 1–7	15		
Merasheen	do			Present.
Middle Arm	do	40		Bay of Islands.
Musgrave Harbor	Dec. 7–13	4		
Do	Jan. 11–17	6		Feb. 7, 1919: Present.
Paradise	Dec. 7–13	60		Placentia Bay.
St. Georges	Feb. 1–7	11		
St. Jacques	Jan. 18–24	2		
Panama				Aug. 1–Dec. 31, 1918: Cases, 133, occurring at Colon, Panama, and points in the rinteior. Jan. 1–25, 1919: cases, 28.
Colon	Dec. 15–31	1		
Do	Dec. 29–Jan. 25	7		
Philippine Islands:				
Manila	Nov. 2–9	2	2	
Do	Dec. 29–Jan. 4	1	1	Varioloid, 1.
Portugal:				
Lisbon	Nov. 16–Dec. 28	843		
Portuguese East Africa:				
Lourenco Marques				July 1–Oct. 31, 1918: 45 fatal cases.
Siberia:				
Vladivostok	Nov. 1–3	4		
Spain:				
Cadiz	Oct. 1–31		3	
Madrid	Sept. 1–Oct. 31		153	
Seville	Nov. 1–30		2	
Valencia	Nov. 10–Dec. 21	40	9	
Straits Settlements:				
Penang	Oct. 6–12	1		
Union of South Africa:				
Cape Town	Aug. 1–30	1		
Johannesburg	Aug. 1–Oct. 31	12		Nov. 1–30, 1918: Cases, 7.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Dec. 28, 1918, to Feb. 28, 1919—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers	Nov. 1-30	1		
Austria-Hungary:				
Hungary	Sept. 2-8	2		
Brazil:				
Ceara	Sept. 14-21	1		
China:				
Antung	Dec. 2-15	2		
Do	Jan. 6-12		1	
Columbia:				
Barranquilla	Nov. 8-Dec. 28		3	
Do	Jan. 19-25	1		
Egypt:				
Alexandria	Oct. 14-Dec. 31	85	36	
Germany:				
Breslau	Sept. 29-Oct. 19	12	8	
Königsberg	do	3	1	
Mostolten	do	7	2	District of Allenstein.
Great Britain:				
Glasgow	Dec. 22-28	5		
Greece:				
Saloniki	Sept. 29-Dec. 21		34	
Do	Dec. 29-Jan. 4		25	
Japan:				
Nagasaki	Nov. 10-Dec. 29	13	4	
Do	Dec. 30-Jan. 5	4		
Java:				
East Java				Oct. 7-21, 1918: Cases, 5.
Surabaya	Oct. 7-21	4		
Mid-Java				Sept. 25-Oct. 16, 1918: Cases, 8.
West Java				Oct. 2-23: Cases, 31; deaths, 6.
Batavia	Oct. 2-23	15	4	
Mesopotamia:				
Bagdad	Oct. 5-11	1		
Mexico:				
Guadalajara	Nov. 1-30	2		
Mexico City	Sept. 22-Dec. 28	434		
Do	Dec. 29-Jan. 25	128		
Serbia:				
Belgrade	Feb. 5	62		Among soldiers and prisoners.
Siberia:				
Vladivostok	Sept. 1-Dec. 15	23		
Spain:				
Huelva	Oct. 1-31		2	
Madrid	Dec. 1-31		1	
Union of South Africa:				
Port Elizabeth	Sept. 14-28			Present among natives in several interior towns.

YELLOW FEVER.

Brazil:				
Pernambuco	Oct. 1-Nov. 30	2	1	
Ecuador:				
Babahoyo	Nov. 1-30	1		
Duran	Nov. 1-Dec. 31	3	2	
Guayaquil	do	163	87	
Milagro	Nov. 1-15	1		
Punta de Piedra	Nov. 1-30	1		
Salvador:				
San Salvador	Jan. 9	1		
On vessel:				
S. S. Jamaica	Jan. 30	1		At quarantine station, Canal Zone, Panama.